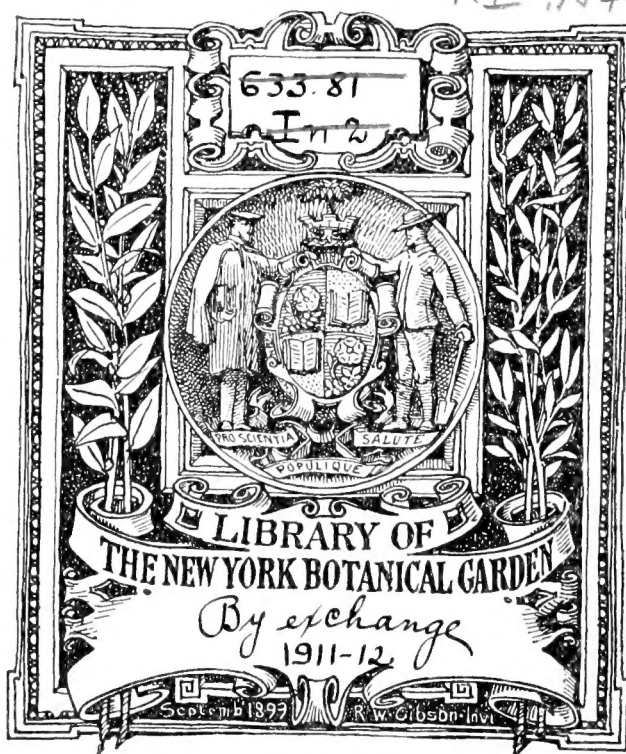


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BRAZILIAN PLANS.

FOLLOWING up the legislation of the state of Pará the next step has been an effort to secure the co-operation of the Federal Government in the remedial policy specified in the August, 1911, issue of THE INDIA RUBBER WORLD (page 396). This legislation provided for the issue of a foreign loan equalling \$30,000,000 upon joint state and federal responsibility; the interest being covered by a tax on rubber exports, representing about 6 cents per pound. Loans on land and produce would be made through a bank to be established at Pará. It is, of course, an open question whether a country with the resources of Brazil needs to borrow a large sum of money to tide over present difficulties in one of the leading national industries. The solution of that question lies to a great extent in the removal of the obstacles to cheap production, to which reference is made in the German opinion quoted in another column. Brazil must evidently grow rubber cheaply in order to compete in the

world's markets and it is therefore to this branch of the subject that the earnest attention of Brazilian economists and legislators will be directed in the near future.

The past month has witnessed various interesting new developments in the rubber crisis. As told in another column, the congress of state and commercial delegates lately held at Rio de Janeiro at the invitation of the Minister of Agriculture, passed at its closing session a resolution cordially approving the government proposals for dealing with the rubber crisis, on the basis of reducing cost of production, and stimulating consumption by reductions in the export duties.

From cable advices it would seem that there has since been another meeting (about September 15), when the Government was asked to take action for advancing the price of rubber. According to reports, it was contemplated to stop rubber exports from Pará next year by placing a prohibitive export duty of double the present rate on the product raised in Pará and Manáos. This measure, it is understood, would be applied if the price did not reach the equivalent of \$1.80 to \$1.92. The valorization plan would likewise be probably put in operation.

WHAT HIGHER RUBBER MEANS.

AT no time in the history of the rubber trade could rubber manufacturers view a fifty per cent. export duty on Brazilian rubber, and a restriction of the Acre product with greater calmness. Factory stocks have accumulated, reclaimed rubber is understood and manufactured on a greatly increased scale here and abroad, plastics, such as mineral rubber, are utilized the world over, and plantation receipts are constantly growing.

If Brazil does as she plans, as she certainly has every right to do, rubber will undoubtedly be higher for a time. The result, however, will be a tremendous increase in planting, a further exploitation of the lesser rubber producers, the substitution of many plastics for rubber wherever it is possible, and the final disappearance from the market of all wild rubber, the cost of collection of which is above 50 cents a pound.

MALAYA FIVE YEARS FROM NOW.

DR. H. N. RIDLEY, the well-known director of the Botanic Gardens, Straits Settlements, in his report covering the past year, makes the following ex-

ceedingly cheerful prediction regarding the production of rubber in the Malay Peninsula. "In 1916 the output for Malaya should be at least 65,000 tons on the present acreage alone—provided nothing unforeseen arises to cause the abandonment of already planted land."

The Malayan product for 1910 was 12,563,220 pounds. If, according to the director's prediction, this product in 1916 equals 130,000,000 pounds, the increase for these five years will be approximately 117,500,000 pounds. The acreage planted to rubber in the Malay peninsula at the end of 1910 was 362,853 acres, or about one-third of the planted area of the world. Suppose the territory outside Malaya does as well as the Malay district, the total increase of plantation rubber in 1916 would be in the neighborhood of 352,500,000 pounds, which is over twice the world's present supply. In other words, assuming that the output of wild rubber remains stationary, the total rubber production in five years will be over three times the present supply.

That is such a stupendous increase that one cannot help feeling that the figures may have some flaw, but further computation proves them thoroughly sane. Allowing 100 trees to the acre, there were at the end of 1910 in the Malay peninsula 36,285,300 trees. In 1916 these trees will range from six to fifteen years of age, and a production of 130,000,000 pounds is only $3\frac{2}{3}$ pounds per tree, which certainly is conservative.

The situation is fairly clear, therefore. If the wild supply suffers no diminution and if, to quote Dr. Ridley again, "nothing unforeseen arises to cause the abandonment of the already planted land," 1916 should see the rubber industry safely past any possible famine stage. But, of course, considerable weight will have to be attached to both those "ifs," especially the last.

THE WASHING OF WILD RUBBER.

THE average man, of middle life, experienced in the unfulfilled promises of many business ventures, with past disappointments and losses in mind, is usually antagonistic to new ventures. The record of the past is his guide. The thought that the future has new methods, revolutionary changes and uncharted by-paths is repugnant. Hence he condemns the new, unless it keeps step with his own practice. That is why but a short six years ago the head of a great rubber corporation gravely informed a listening audience that rubber

planting in the Middle East was only an experiment carried on by the British Government and that it could by no possibility amount to anything. He believed what he said, not only because his experience taught him that such ventures were risky, but because of his unconscious repugnance to a change of conditions.

Rubber planting wins out however and the repugnance vanishes. Moreover, the former mental attitude toward it is forgotten. Now, there is no harm in the attitude, for that is a part of conservatism. The harm is in the forgetting, for the same type of mistakes will be certain when the next problem arises.

All of this leads up to the consideration of something new in rubber, and something that is being very generally condemned. That is the washing of crude rubber in the countries where it is gathered. Of the many arguments adduced against it two are worth considering. The first is the statement that rubber manufacturers already equipped with washing apparatus prefer to do their own cleansing, because they know exactly what they get when the native gathered gum arrives. The only trouble with that statement is that it is not a fact. Their shrinkages, claims and damaged goods testify to the contrary. The second objection is that washed rubber will be classed as a manufactured product and subjected to import duties. So far there is no evidence of any attempt at such a ruling. Crude rubber deprived of its moisture is still crude rubber. It is unmanufactured until it is worked up into rubber goods. Washed or unwashed, it must go to the rubber mills for compounding, cutting, making up, finishing and packing before it is ready for the market. The intent of the law is very clear and there is little likelihood that cleaner or dryer crude rubber will ever be assessed as a manufactured product.

On the other hand, the rubber manufacturers have found no difficulty in using the clean, dry plantation sheet or block. There has arisen no case of adulteration on the part of the producer and it comes in free of duty. Moreover, its appearance upon the market in quantity has opened the eyes of the wild rubber gatherers to the importance of a clean product. The day will come when from Brazil, from the Congo, from the Gold Coast will come clean, nearly dry rubber, because it will be more merchantable and more profitable. The standardization of crude rubber should begin at its sources. To further this work, it is only necessary for the State of Pará, for example, to put a small additional tax upon dirty rubber and it will soon all be clean. Then, if they put an added

tax upon wet rubber, it would soon come into port partly dry. Such a plan worked in the Philippines, and if there why not everywhere?

"CASTILLOA" COMING INTO ITS OWN.

GIERLINGS' method for extracting the latex of the *Castilloa* which has been adopted by planters in Java, appears to be a distinct advance over those in general use. Half a pound from 8 and 9 year old trees, with a cost of, say, 25 cents and a market price for the product of at least \$1 should encourage all *Castilloa* growers.

SECRETS IN RUBBER MANUFACTURE.

IT is often remarked that today there are no secrets in rubber manufacture. The policy of the open door that the greatest and most progressive factories have long pursued, the constant interchange of ideas among foreign and domestic managers and superintendents, their visits one with another and their inspection of each other's plants would lead one to assume that there could be no private processes, no special machines—in a word, no secrets.

A letter of protest from the head of the chemists' club regarding the lack of information given out by rubber chemists, however, would lead one to infer that some things were still concealed. A careful analysis of papers read by factory managers or chemists at any of the great rubber conventions also reveals a striking absence of new discoveries, novel theories or revolutionary processes. It is, therefore, to be assumed that there are still rubber secrets. Indeed, the whole business of rubber manufacture so lends itself to individual discovery in a thousand different ways that it always has been and always will be a semi-secret industry.

As far as the world at large is concerned, it is wholly secret. The eminent novelist who pictures natives in Africa torturing a man by coating his hands with "boiling rubber" is typical of the distance the average man penetrates into rubber knowledge.

The manufacturers themselves, of course, have the basic facts of compounding, making up, and vulcanization in common. Beyond that, they become more or less individual in practice and often get exceedingly far apart. Here, therefore, is a fruitful field for secrets. For example, a manufacturer of conveyor belting for a specially hard service, experimented for two years to

get a compound that would last the longest. By an amalgum of three kinds of crude rubber, by incorporating several ingredients in just the right proportion, and with a cure exactly fitted to the compound, he secured a result that was far ahead of what any other in the series could produce. He not only adopted this for his belts, but naturally guarded it very carefully. A visiting brother manufacturer, although he stayed in the factory for a week, would have no knowledge of this compound. This is but one instance; there are thousands of others, big and little. They enter into cleansing, massing, compounding, calendering, making up, curing and finishing. Special secrets are in the possession of owners, chemists, managers, superintendents and foremen. Some are known to one only; others to half a dozen; still others to some branch of the trade, and so on. As the business grows, the old time secrets become generally known in factories here and abroad; but so varied are the crude rubbers, and the compounding ingredients, so many users demand their own type of rubber product, that fresh secrets take their places. It is, therefore, no exaggeration to state that in matters vital the business of rubber manufacture is today even more of a secret industry than it was twenty years ago. That is why it does not profit those in the lead to take the whole even of the technical world into their confidence.

RETAILERS WANT LOWER SHOE PRICES.

A LOCAL paper reporting the convention recently held in Cincinnati, by the Ohio Retail Shoe Dealers' Association, quotes the attitude of that convention as follows: "The price of rubber has decreased; but there has been no decline in the price of rubber shoes—and we want lower prices." There is nothing reprehensible in this attitude of the retail shoe dealers; the desire for lower prices is a fairly universal one. Everybody feels it in almost every line, and gives more or less frequent and vociferous expression to the feeling; but in this particular case is the demand well founded? The members of the convention reason as follows: "A year and a half ago crude rubber was selling for \$3 a pound. Now it is selling for \$1.15 a pound—a drop of 60 per cent. Why don't shoes drop?" On the face of it they seem to have the logic with them; but the trouble is they are reasoning without the essential facts. It is true that eighteen months ago rubber sold as high as \$3 a

pound; it is equally true that it has recently told for one-third of that amount, but it is not safe to draw a deduction from these facts that it costs only one-third as much now to make shoes as it did eighteen months ago.

As a matter of fact, it is probably safe to say that not an ounce of \$3 rubber or rubber anywhere in that vicinity went into footwear, and it is probably equally safe to say that no rubber at the recent low prices has been used in footwear manufacture. The highest-priced rubber that went into boots and shoes during the \$3 period would probably be in the neighborhood of \$2.25, and it is an equally safe conjecture that the footwear now on the market contains very little rubber that cost the manufacturer less than \$1.45. It would be safe to strike an average of about \$1.75. So if the manufacturers were to drop their prices even in a remote proportion to the drop in crude prices, they would be selling at a loss.

To be sure, the price lists of the "Tennis" lines, issued September 1, show moderate reductions in certain lines, running in some shoes as high as 10 per cent., but the "Tennis" shoe is not a large consumer of rubber, as compared with all-rubber shoes, and especially as compared with the heavier varieties of rubber footwear, like the lumbermen's goods and boots. The "Tennis" line, therefore, cannot properly be taken as a criterion for the general footwear line.

THE SELF-DECEIVED SUGGESTOR.

THE suggestive individual is not to be frowned upon. He has a large place in modern affairs and should be encouraged. His efforts whether of value or not, should receive adequate thanks, but—that is all. This thought is prompted by certain claims advanced by a brilliant young rubber man for a share in a machine, the invention of which he suggested. The business and industrial world is full of such complacent individuals who doubtless really did suggest improvements of greater or less value and then their effort stopped. Then when after experiment, partial failure and expenditure of brain tissue and money, some worker perfects an invention, the suggestor lays claim to the idea and would if he could share in both its glory and profit. To all of us comes the temptation to say, "I suggested that years ago," but it is one that none but the self-deceived will give voice to. Hundreds suggested a Brooklyn bridge, tunnels under the North River, flying machines, wireless

telegraphy, rubber plantations. Their equity in those accomplishments is absolutely nothing. To suggest a million dollars is not to create one cent. Suggest and—forget it.

A DECADE OF AMERICAN RUBBER EXPORTS.

THE tabulation showing manufactured rubber exports from this country for the last ten years, that appeared in the September number of this publication (page 504), is interesting as showing what is being done in an exceedingly important department of rubber manufacture. That table shows that there has been an increase of exports in practically all lines of rubber manufacture, but that the increase has not been uniform among the different lines. The exports of belting, packing and hose, for instance, increased from a value of \$634,146 for the year ending June 30, 1902, to \$2,163,416 for the year ending June 30, 1911—an increase of 250 per cent. Another interesting feature of the exports in these particular goods lies in the fact that the increase was uniform during the entire ten years, each year showing an advance over its predecessor.

In boots and shoes there was an increase from a value of \$1,046,315 to \$2,219,480, or an advance in sales of over 100 per cent. The increase in these goods was not uniform, however. The first five years showed a continuous growth in exports, but in the sixth year there was a drop. Another advance took place in the seventh year, with a drop in 1909 to approximately the same figures as were shown in 1905. 1910 showed, however, a marked increase, which continued in the year ending with last June.

The growth of exports in all other rubber goods, exclusive of the lines mentioned above, was quite marked—the figure advancing from \$1,781,941 for the year ending June 30, 1902, to \$6,564,402 for the year ending with last June, thus showing an increase of about 300 per cent. The exports in these lines show a steady advance from year to year, as in the case of belting, packing and hose.

Now, the first feature of these tabulations to attract attention, is the fact that the increase in rubber footwear exports has not kept pace with the increase of exports in other goods. Exports of boots and shoes barely did more than double in the last ten years, while the foreign sales of belting, packing and hose increased nearly three and one-half times, and of other rubber goods

nearly four times. There does not appear on the surface any good reason why rubber footwear exports should lag behind; there ought to be a wide market in Europe for American footwear. To be sure, the vast snow-covered territory of Russia is barred, the manufacture of rubber footwear in that country being a government monopoly, and imports being prohibited. But there are a great many million people in the British Isles, Norway and Sweden—where they certainly have snow enough—in Germany, France and Austria, who ought to be fair targets for the American rubber shoe manufacturers. There is, to be sure, no lack of local competition, England, Germany, and France all having rubber footwear factories that have long been doing a large and profitable business, but the American rubber shoe, which is lighter, more shapely, and hence more attractive, ought to have no difficulty in attracting custom, particularly in the large cities of England and the continent, where people are not quite so content as their rural compatriots to wear heavy and clumsy looking shoes. Labor in European rubber factories is paid, it goes without saying, much less than in American factories, but over against that disadvantage the American manufacturer has more efficient labor and superior machinery, so that in point of cost he ought not to be seriously handicapped.

Formerly, the American footwear manufacturers assigned as a reason why they were not more active in securing foreign trade, the fact, or the alleged fact that the home market exhausted their capacities, and that consequently there was no particular necessity for looking away from home for customers. That might have been true a decade ago, but with the added manufacturing capacity of the present day in this line, and in face of the situation presented during the past summer, when many of the mills were closed for several weeks, it is fairly obvious that the American footwear factories can easily take care of more business if they could get it, and it would certainly seem as if, with a little more strenuous effort, they could get it abroad.

GOLF BALLS \$6,000,000.

WITH the increase in interest in out-of-door sports golf has steadily grown more popular, until today few communities in the United States are without at least a nine-hole course. Five years ago, it was said that there were a quarter of a million golfers in

America. Today there are certainly half a million. It is a bit difficult to estimate the number of balls used, for players vary in times over the course, losses, and in the damage they do to the gutta-percha spheres. Then, too, some have old balls remade, and soiled balls painted. It is pretty certain, however, that at least two dozen balls per season are purchased by the average golfer. That means 12,000,000 balls, at \$.50 each (the \$.75 ones offsetting the remades), there is an investment on the part of golf players of \$6,000,000 per annum.

James Ryan, in the "Times of Ceylon" thus prophesies: "There are, however, not wanting signs that at some not distant date something may be done to vulcanize rubber before shipment from Ceylon and Malaya. The process is so excessively simple, and so effectively prevents the daily alteration in quality and appearance of unvulcanized rubber of all grades (except block or very thick sheet) which now occurs, that it only requires a steady and continuous effort on the other side of the water to ensure a steady London demand. Out and out the best sample of rubber in the show was a vulcanized piece of thin sheet from Gikiyanakande. This was vulcanized in England, but it remained unaltered throughout the three weeks it was on show, while unvulcanized estate samples were altering from day to day under the influence of heat, light, oxygenation and enzymes. Even in the case of block rubber, it opens up a vista of possibility which would justify as much expenditure as we Ceylon planters spend on pushing Ceylon tea in America and elsewhere."

Crude rubber from Ceylon or Malaya sells to rubber manufacturers, say, for \$1.25 per pound. The same rubber vulcanized on the plantation and sent into the markets would be worth, perhaps, 20 to 30 cents a pound. The reason is that before it could be compounded, calendered, cut and made up it must be devulcanized, and under the most favorable circumstances it would then be worth 50 to 60 cents a pound. That is the actual "vista of possibility" that the plan opens up.

A MARKET FOR CARRIAGE TIRES.

A CONSULAR report from Italy states that in Naples and other Italian cities the chief method of local locomotion is the one-horse cab, and that owing to the iron tire and the rough pavement it is a very uncomfortable means of getting about. The report suggests that here is an excellent market for the solid rubber tire makers of America. The report goes on to say that the same condition prevails in most of the other continental cities and particularly mentions the cities of Greece.

A GREAT LOSS IN SELLING FORCE

SUPPOSE a big department store should attempt to do business under twenty different names; for instance, calling its dry goods department "The Emporium," its grocery department "The Supply Company," its hardware department "The Equipment Store," the book department "The Bibliophile Association," and so on for the other sixteen departments. And suppose, as would be the natural and inevitable consequence, all of its advertising announcements followed this same plan; as if the twenty departments were twenty unrelated undertakings and with no reference to the fact that they were all parts of one concrete enterprise.

This would certainly be a particularly foolish method of conducting business. The store would wholly lose the chief advantage of its size. It could still buy cheaper than its smaller competitor, but most of its selling advantage would be lost. Its advertising force would be frittered away and all the selling power that comes from a great aggregation would be dissipated. In fact the situation would be such a transparent piece of folly that there is no danger whatever that it will ever be witnessed.

And yet a great many manufacturers are resting with evident composure and with apparent content in a position altogether analogous. Instead of adopting a single name or trade mark and placing this on every piece of goods that leaves their factory, they have adopted a dozen different trade marks, sometimes a score or more, often without the least family resemblance; so that only a Sherlock Holmes would be likely ever to discover that they came from the same factory and enjoyed a common parentage.

We will say, for illustration, that the name of the company is "The World Rubber Company." You will probably find its letter-head blazoned with a fine trade mark containing the name with the traditional hemispheres as a background. "Now," you say "there is a good trade mark," and you will expect to find it on all their goods. But to your surprise when you examine their packing you will find that stamped the "Bestever." Their hose will bear the legion "Topnotch;" their tires will be called the "Old Hickory," and the "Everwear," and their shoes will be styled the "Old Glory" line with an undecipherable imitation of a flag flying in the breeze. Likely enough there will be several different trade marks on different articles of the same general line. One piece of hose, for instance, being marked with a red star, and another piece of a little better quality being called the "Silver Moon."

Perhaps the reader may think this an exaggerated presentation of the matter and be disposed to argue that most manufacturers stick quite closely to one trade mark. Perhaps most do, but so many don't that the matter is well worth considering. "What is your regular trade mark?" a manufacturer of a large variety of rubber goods was asked. "Trade Mark?" he replied. "Why I guess we have sixty." A census of his output proved his guess close to the mark.

Now the chief value of the trade mark is the goodwill that grows up around it; the reputation that it comes in time to stand for. This in the course of years, if the business is properly conducted becomes extremely valuable. It is in fact a manufacturer's chief asset. If to good goods and proper business methods is added judicious advertising a trade mark can in time be made familiar to millions of people, so that when a certain article is spoken of, or comes into the mind, it always brings with it the suggestion of that particular brand; just as in the days of our boyhood nobody ever thought of a "show" without thinking of Barnum.

But what manufacturer can ever hope to familiarize the public with sixty trade marks or even with six? In fact why should he try to familiarize them with two when it is twice as easy and half as expensive to familiarize them with one?

Sometimes you hear a manufacturer say, "I know these goods don't all bear my name, but the trade knows who makes them and where to come for them." That is quite true. The drug trade probably knows that certain druggists' sundries bearing a variety of names and stamps are all made by Oldchap & Way-back, but the consumer doesn't know it; and the manufacturer who is pinning his faith solely to the "trade" is likely to find himself on the siding while his competitor goes by on the main track in a special car. The consumer is the man the manufacturer should tie to. Get arm-in-arm with him and you can carry the "trade" in your pocket. And the only way you can get in and keep in with the consumer is to make yourself so easily identified that he will soon come to know you and will recognize you anywhere.

Suppose, for instance, the consumer has tried some of your garden hose that bears your unvarying trade mark on it. It is excellent hose, wears well and he likes it. Now he wants a tire. He goes into a tire shop, looks over various makes and finds one with your name on it. "There," he says, "that man's hose is the best I ever had. I will take his tires on faith." If you had had a different name for your tires, you would have missed that sale—and thousands of others.

The best salesmen in the long run any manufacturer can have are good goods, and the best advertising ever done is the advertising that goes out each day from the mill in the form of a thoroughly satisfying product; but the only way the manufacturer can get the benefit of this sort of salesmanship and advertising is to have his goods so marked that they can always be identified as his. Then every good thing he sends out helps every other article he makes, and if they are all good they all pull together, his hot water bottles helping his shoes, and his shoes helping his tires.

The value of a single trade mark is cumulative; it is at work all the time. Every time it is seen, whether in print or on goods, another impression is made on somebody's mind, an impression that will become an active selling force whenever that particular article is wanted.

But if a manufacturer has twenty or thirty trade marks, or even ten or a dozen, obviously there can be no unity of action, no pulling together, no coöperation whatever. They are all pulling their separate ways. Even if the manufacturer's articles are all excellent each has to make its own way alone, neither getting any help from the others nor being able to afford any help to them; as there is no connecting link to fasten them together. Nor can any effective advertising be done. Half a million dollars judiciously used would serve to bring a single name before the eyes of every reading person in the United States and do it with sufficient force to make a palpable impression on the greater number of these minds; but twice that sum scattered over ten different names would not be able to produce any appreciable effect.

Of course the exigency of trade may sometimes induce a manufacturer to make certain goods whose parentage he prefers not to have disclosed. In that case he is wise to give them unidentifiable names. But where he is not ashamed of his goods, where he really looks upon them as thoroughly creditable, he ought certainly to have them so marked that he will get the credit.

It is quite possible for a manufacturer to build up one good reputation, but he can't build up twenty.

Field Marshal Lord Kitchener, the British general, whose several African campaigns have given him an excellent idea of the nature and possibilities of the country, is reported to be going into rubber planting. He has taken up land at Muhoroni, in a very fertile district, near the Uganda railway and about 550 miles from Mombasa and 38 miles from Lake Victoria Nyanza, where it is said that he will grow *Ceara* rubber.

The Brazilian Rubber Congress.

WITH a view to defining and elucidating the situation, a congress was opened on August 14, at the Ministry of Agriculture, Rio de Janeiro, composed of delegates from the rubber producing States of Brazil and from various Brazilian commercial bodies, interested in the solution of the rubber crisis. The congress was under the presidency of Dr. Pedro de Toledo, Minister of Agriculture.

Among those present was Senhor Monteiro de Souza, deputy, representing the State of Amazonas and the Manaus Commercial Association; Senhor Passos de Miranda, deputy, representing the State of Pará; Dr. Henrique Hirsch (of Messrs. Adolph Hirsch & Co.), representing the Bahia Commercial Association; as well as a number of delegates from other parts of Brazil.

In his opening remarks, the president alluded to the rubber crisis prevailing in the north of Brazil; affecting, as it did, the second in importance of the export products of the country, and the source of a great part of the national wealth. Sacrifices would be necessary, but would be amply repaid by the industrial and commercial development of northern Brazil. With this view, it had been considered advisable to formulate an organized plan, acceptable to the government, in the elaboration of which material help had been given by Dr. Mendes, director of the Commercial Museum, and Dr. Pereira da Silva, the well-known engineer.

The project, Dr. de Toledo added, had been drawn up in complete accord with the views of the president of the republic. It embraces a systematic program of suitable measures, which, when once carried into effect, would ensure a period of prosperity to the rubber-growing States.

When the reading of the plan, of which translation is subjoined, had been concluded, Senhor Passos de Miranda expressed his approval of same. Senhor Henrique Hirsch, the delegate of the Bahia Commercial Association, asked whether the project was susceptible of modification. Dr. de Toledo replied that the proposals represented the initiative of the government, with a view to meeting the competition of Far Eastern rubber. The plan was economic rather than financial in character; the government being prohibited from entering into trading operations, for the solution of the present crisis. The project, he added, was subject to such modifications as might be dictated by the experience of the delegates.

A proposal was unanimously accepted for the appointment of a committee of five members to study the plan elaborated by the government and to present a report at the second session, to be held a week later. The delegates selected for this committee were Messrs. Monteiro de Souza, Passos de Miranda, João Cabral, Henrique Hirsch, and Arthur Orlando.

* * *

At the second session of the Congress, held on August 22, Senhor Passos de Miranda, delegate from the State of Pará, and spokesman of the special committee which had been investigating the government proposals, presented a report from that body to the effect, that being impressed with the prospective benefits and results to be anticipated from the proposals submitted, they requested the government to take into consideration the slight alterations suggested and to examine the supplementary proposals, as justified by their respective authors, with a view of seeing how far the requirements indicated could be complied with.

The president (the Minister of Agriculture) then stated that the recommendations of the special committee would receive the due consideration of the government, and would be published

in full. The suggested alterations proposed in Section 2, that the money prizes should be given for *Hevea*, as being the best quality of rubber; in Section 4, that the 25 years would count from the date of the promulgation of the law. In Section 8 (second object) par. b, it was proposed to establish a field of demonstration in Matto Grosso.

In conclusion, the president added that after careful study, the whole matter would be submitted to the Federal Congress for ultimate decision; the valuable interests of northern Brazil being duly regarded and protected. In order to carry out the plans in view, the co-operation would be needed of the state and municipal governments. He expressed appreciation of the work of the delegates, to whom he tendered cordial thanks.

On the motion of Dr. João Cabral, delegate of the State of Piauh, the following resolution was adopted without debate:

"The representatives of the States, commercial associations and other interested bodies, assembled in the present Congress, upon the invitation of the Honorable Minister of Agriculture, to study the problem of the north of Brazil, wishing to declare itself as to the plan elaborated by the government, to be submitted to the appreciation of the Congress, hereby express their great satisfaction with and sincere approval of same. It is conceived with judgment, patriotism and decisiveness on the part of the government in dealing with this problem, of vital importance for northern Brazil."

After the passing of this resolution, the president declared the congress terminated.

* * *

PROPOSALS SUBMITTED TO THE CONGRESS.

The following proposals were submitted to the Rubber Congress, held at Rio de Janeiro, August 14, 1911.

1. The exemption from all import duties of all utensils and materials intended for the cultivation, gathering and treatment of three descriptions of rubber (*Hevea*, *Manicoba* and *Mangabeira*), whether only for purposes of extraction or for cultivation.

2. The awarding of money prizes under two categories: (a) for *Hevea*, *Manicoba* or *Mangabeira*; (b) for other descriptions; in such a way as to promote the ground being suitably utilized, as well as for the entirely new cultivation of any description of rubber.

The prizes will be awarded for sections of 25 hectares (about 62½ acres) in the first category and of 12 hectares (about 30 acres) in the second. They will be based upon the species of tree cultivated, and the outlay during the year immediately preceding the commencement of production.

3. The establishment at convenient, selected points, of experimental stations or fields of demonstration for the cultivation of *Hevea* in the State of Amazonas and the interior of Maranhão (in one of the valleys of Tury-Assú, or of Mearim, Jequitinhonha or the Contas river); and for the cultivation of *Manicoba* in the South of Piauh, in the interior of Serido, in Rio Grande do Norte, in the south of Bahia, in the north of Minas and in the interior of São Paulo. These stations should furnish annually to all interested persons, information as to results obtained and seeds selected, as well as instructions with reference to the best methods of cultivation.

4. General reduction to one half, of the present federal state or municipal export duties on rubber from native trees, with the exception of Cauchó; and the complete elimination of these duties during 25 years, for plantation rubber produced from the same species of trees.

5. Concession of the privileges necessary and sufficient for the establishment of refining plants, which will reduce each species of rubber to a uniform type for export.

6. Concession of the privileges and advantages necessary for plants manufacturing rubber goods, seeking to establish themselves in the country; particularly at Manãos, Pará, Pernambuco, Bahia and Rio de Janeiro.

7. Organization of a permanent service for aiding workers, whether native or foreign, who come of their own initiative, or with their traveling expenses paid by the Federal Government or by the Brazilian states, to the valley of the Amazon; including the construction of three hospitals of sufficient capacity at Pará, Manãos and a convenient point in the federal territory of Acre. The organization and objects should be identical with those of the Ilhas das Flores, or some hospitals of the interior; the hospitals to be surrounded by small agricultural colonies, where patients can be received for gratuitous treatment and vaccination, with facilities for selling medicines of the highest quality, especially sulphate of quinine, also for the extensive distribution of printed matter containing recommendations as to hygienic measures for the prevention of diseases, as well as rules and methods for curative treatment in the absence of a doctor.

8. With special reference to *Hevea* rubber, the following measures should be carried out with the greatest urgency, intended to facilitate and cheapen transportation within the valley of the Amazon and also to provide such transportation between that point and the states of the North-East and South, as may allow of supplying the markets of distribution with an abundance of healthful alimentation.

In connection with the first object:

(a.) Construction of a railroad starting from a convenient point on the Madeira and Mamoré line, near the mouth of the River Abuman by Villa Rio Branco and a point between Senna Madureira and Catay, and terminating at Villa Thaumaturgo, with a branch to the Peruvian frontier in the valley of the River Purus. As the construction of this railroad will be a measure of considerable importance for the supply under favorable conditions of all descriptions of imports to the federal territory of Acre, Porto Velho, on the River Madeira, should be open to the commerce of all nations.

(b.) Construction of a railroad uniting the valley of Amazonas with the northeastern and southern states of Brazil.

(c.) Improvement in the navigable conditions of the River Negro, as far as Cuculy; of the Branco, as far as Boa Vista; the Purus, as far as Senna Madureira; and the Acre, as far as Rie Zinho.

(d.) Exemption from import dues of steamers intended to navigate the rivers, and the revision (with the object of reducing and simplifying the present burdens) of the Coasting and River Navigation Laws.

(e.) Concession of indirect favors, including exemption from import duties, of an enterprise proposing to establish depots of coal at convenient points to be chosen, intended to supply steamers at the lowest possible prices.

In connection with the second object:

(a.) To lease two of the national farms of Rio Branco, to a suitable enterprise, engaging to carry out on a large scale the breeding of cattle, and to cultivate cereals (maize, beans, rice, manioc, etc.); also to establish a packing house, to make dairy products, with machinery for the treatment of rice and other cereals and for the manufacture of manioc flour.

(b.) Direct colonization, in conjunction with the administration, of the farm of São Marcos to the north of the River Uraricoera, with families of agriculturists and cattle breeders; having in view the development of production of the above-named alimentary articles on the farms leased by the Government, and also particularly the breeding of cattle, horses and mules.

(c.) Concession of privileges to three companies, which may

wish to establish large farms on the above conditions in the territory of Acre, between Rio Branco and Xapury; in the state of Amazonas, in the zone of the river Autaz; and in the state of Pará at a point convenient to the Lower Amazon.

(d.) Concession of privileges for the establishment of a company for the purpose of fishing, properly equipped to salt and can fish.

9. With special reference to the federal territory of Acre, the immediate definition and consequent recognition of lands now held and the granting of the definite titles.

10. The holding of triennial expositions at Rio de Janeiro, as well as the awarding of prizes for the best product and processes.

A GERMAN VIEW OF BRAZILIAN RUBBER.

In dealing with the questions now affecting Brazilian rubber, the Rio de Janeiro correspondent of the "Hamburger Nachrichten," calls attention to the fact, that out of the \$315,000,000 represented by the aggregate exports of Brazil in 1910, about \$132,500,000 consisted of coffee and \$122,500,000 of rubber. The rubber question is thus a vital one for that country.

The worst point now affecting Brazilian rubber, it is remarked, is not the present low price (for which North American speculators are held responsible), but the constantly increasing competition of the rubber plantations of India, Ceylon, the large Sunda islands, the German colonies in Africa, etc. Brazil would, it is added, be quite able to withstand this competition, if the cost of production were diminished and if, above all, the three principal factors, which increase the cost of Brazilian rubber, were wholly or partially eliminated. These are:

1. The export duty of 22 per cent., on the value, which is levied in Pará and Amazonas, as well as in the Federal Territory of Acre.

2. The excessively high price of the necessities of life in the rubber territory, where nothing is grown.

3. The high cost of transportation as a result of the Coasting Law.

With reference to the last-named point, it is remarked that the Amazon, with its tributary streams, has about 30,000 miles of good navigation. It might be expected that under such favorable circumstances, transportation would be cheap; in fact cheaper than in any part of the world. The Brazilian law, however, requires for a steamer of 300-500 tons, the same number of officers and as large a crew as for an ocean steamer of 1,000 tons. Steamers and other craft which ply between Manãos and the Madeira-Mamoré territory have thus to carry excessive crews.

According to the statement of an American engineer, the freight rate from Pará, to São Antonio in the territory named, amounts to the equivalent of \$25 a ton, while the rate from Antwerp to the same port only equals \$7.50 a ton. In conclusion it is pertinently remarked:

"Under these circumstances, it is clear that neither the rubber business, nor any form of industry can prosper. A primary condition of prosperity is a change in the Navigation law, which is the real cause of the unsatisfactory state of transportation, not only in the Amazon territory, but throughout the Brazilian coast in general."

THE "VINDICATOR" OF YOUNGSTOWN, OHIO, IS THE AUTHORITY for the statement that the Republic tires sold by the E. A. Wick Rubber Company of that city have been used on the police patrol wagon for the last three months without a puncture and with the same air originally put in. Now this is either an excellent commentary on the quality of these tires, or viewed in another way it may simply be a proof of the propriety with which the people of Youngstown conduct themselves. Possibly the patrol wagon has not been in use during the past three months. However, it is only just to give the tires the benefit of the doubt and to assume that the patrol wagon has been constantly on the go.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

WITH regard to the movement on foot to admit rubber manufacturers and merchants to the Exchange under their own organization, and to list crude rubber, I may say that in my opinion this should tend towards the betterment of the trade generally, provided that any substantial rubber manufacturer can

THE NEW YORK PRODUCE EXCHANGE.

become a member; and this more particularly as rubber is used by the speculator for his own private gains. It should give manufacturers a better chance of arranging qualities, terms and conditions, so as to suit the trade generally. Such terms, conditions, etc., when formally decided upon should be printed for circulation in the trade, to be available for buyers on application. At present the brokers appear to make their own terms, which are often arbitrary and to the detriment of the trade who are the actual consumers. It is quite time the trade throughout the world made a decided stand against accepting terms and conditions in the making of which they were not consulted. Another essential point is that all rubbers should be marketed under a definite name. Rubber obtained by chemical processes from plants containing it, should be listed as extracted rubber and not masquerade as washed rubber. A proper grading of rubber should be decided on and the question of drafts, shrinkage and standard qualities could be better arranged by manufacturers than by financial houses which frequently lack the necessary expert knowledge. At present a manufacturer plans say a contract for several tons of rubber, delivery over various months, and he will probably find that his washing tables of the various deliveries show a variation of 10 per cent. to 15 per cent. There should be a fixed marginal allowance for shrinkage; and who could better decide this than the manufacturers? I much doubt if there is any other commercial commodity in which the buyer takes so much risk as he does with rubber. The New York Produce Exchange suggestion is the first move in the right direction, and if it is taken up as it deserves to be, no doubt other large centres will follow suit. This would in my opinion lead to more consistent markets, well known conditions and terms, and keep the trade in constant touch with the actual markets to the undoubted benefit of manufacturers. In conclusion I may say that arbitration would be of benefit to the trade, so long as the trade is well represented on any arbitration board.

For a small place this is now quite an important centre of the trade, containing as it does the large works of the Leyland and Birmingham Rubber Company, Limited; the newly erected works of Wood-Milne, Limited, formerly White-

LEYLAND.

head & Roberts; the works of J. E. Baxter & Company, formerly the Dialene Company; the large new factory of Leyland Motors, Limited, and the rubber machinery works of Iddon Brothers, Limited. All these works are situated quite close to one another, and it is not surprising that the population of the village has increased, owing to the demand for labor. The Leyland Motors are busy, and have recently received an important order from a government department for their vehicles. An interesting feature about the Wood-Milne rubber washing plant is the installation of a complete purification plant of the Mather & Platt type, by which the washing water is freed from both its dissolved and suspended impurities and used over and over again. The water supply, both for the washing and the condensing plants, is drawn from a small brook running through the premises; there being other users of the water lower down stream who would object to any defilement of the

water by trade effluents. An alumina and iron precipitant is used to remove the soluble impurities in the wash water, and as such impurities are nitrogenous, it is no surprise to hear that the sludge after being filter-pressed commands a sale in the district as a fertilizer. I don't know whether any other rubber works have a similar purification plant, but they are certainly not common, and their adoption I suppose is entirely a matter of exigency, owing to prevailing conditions of water supply; as I hardly suppose that the first cost and upkeep of the apparatus would be met by the sale of the recovered impurities. The reduction of the dividend of the Leyland and Birmingham Rubber Company, Limited, from 7½ to 5 per cent., caused some surprise and has led to some fall in the quotation for the shares.

The series of strikes which culminated in the great (though fortunately only short-lived) railway strike in mid-August, has of course interfered seriously with trade in the industrial centres. Shortage of rubber and lack of coal led to more

THE STRIKE FEVER.

than one important rubber factory being shut down, and of course the closing down of cotton mills and other concerns led to a falling off in demand for certain classes of rubber goods. At the time of writing I hear of threatened trouble on a large scale with the india-rubber workers, whose union is now taking a more important position than was the case only a year ago. There has been a lock-out at Messrs. W. T. Glover & Company's cable works at Manchester, and a strike satisfactorily settled at the works of the New Liverpool Rubber Company, Limited.

The railway strike led to a great demand for town taxicabs, long distances being covered at somewhat extortionate rates. Doubtless tires suffered severely on the hard roads; indeed for some months now, owing to the results of the dry season, motor tire wear has been excessive. Besides the demand for taxicabs, motor vehicles were in great request by newspaper offices and various tradesmen, the newspaper people being about the only ones who were unable to put the cost on to the selling price of their goods.

A PATENT has been obtained by C. J. Beaver and E. A. Claremont for strengthening rubber sheet cord and strip by a mechanical process and they describe a

STRENGTHENING RUBBER SHEET.

special machine for the process. The patentees are both connected with the cable works of W. T. Glover & Company, Limited, Manchester. They point out that ordinary rubber sheet and strip is mechanically weak and tears easily on being stretched. They further state that it is common practice to modify or eradicate this weakness by various processes, such as vulcanizing, exposure to atmospheric influences, alternately heating and cooling, etc. The inventors propose to discard the older processes and to produce the desired effect by alternately stretching the rubber quickly and then allowing it to contract by releasing. This is to be done very quickly so that the tendency to tear has not time to come into operation. Of course it has long been a desideratum with the makers of cut or spread pure rubber sheet, to so harden it that it will stand considerable pulling without tearing, and in this respect there is considerable difference in the quality of the strip supplied for electrical purposes by different firms. The exact means by which the hardening is carried out, is to a large extent one of the few trade secrets preserved in the industry. Last year I noticed an advertisement in a daily paper published in a rubber manufacturing center, for details of such

a process, indicating that some firm was desirous of getting on terms with a competitor. This is one of those cases where the man who knows how to produce the effect, though he may be only a workman at one pound a week, is of much more use than the chemical expert, as no amount of laboratory investigation will reveal the details of the process to which the rubber has been subjected, unless it has been cold-cured, which, of course, can be detected. Messrs. Glover are large users of rubber strip for insulating purposes, and the invention which has emanated from their works must be considered as of considerable technical importance.

THE reference under the heading in the August 1 issue of THE INDIA RUBBER WORLD is of more importance today than it would have been before the extraction of rubber from highly resinous *laticos* had been undertaken on a commercial scale.

RUBBER FROM NATAL.

I am not aware that such procedure has yet established itself as a commercial success, but that does not matter at the moment. Your notice says that the *Tirucalli* tree which abounds in Northern Natal is to receive the attention of capitalists, and the composition of the latex is given as 10 to 20 per cent. of fine rubber with 50 per cent. resin—the rest presumably being water. This is probably the same latex as has been obtained in a small way from a district in Pondoland, Cape Colony, where the trees abound. A year or so ago samples of this rubber were before me and closely resembled a good quality of Pontianak; the general composition of the substance free from water being rubber 27, resins 73. As far as I know nothing was done with the concession whence these samples came, but if there really is a demand for the residual resin there seems no reason why competitors to the Goebilt Works in Borneo should not spring up in South Africa.

PLANTERS in the East will no doubt be much interested in what the editor says in THE INDIA RUBBER WORLD for August 1 regarding the measures Brazil is taking to maintain her threatened supremacy in the rubber market. Leaving the financial proposals on one side, I note with interest that it is proposed to wash rubber before sale and transport and to export only one quality—the best. I am not sure, however, that this is altogether a step in the right direction; at any rate it is a move that should not be undertaken without the expressed approval of the principal manufacturers of the world. There are many who hold the opinion that rubber travels all the better when it contains 10 to 15 per cent. of water in its pores. Of course in the present days of quick ocean transit this consideration is of less importance than it was formerly, and in addition there is the saving in freight to be considered. Still the manufacturer has a great desire to see his rubber in the raw state and to wash and dry it according to his own ideal. This is more particularly as regards fine Pará. With respect to lower grades of Pará, especially negrohead, I do not see any objection to a partial purification before export so as to produce a more standard grade. Possibly, too, the removal of the bulk of the albuminous matter would tend to produce a better rubber.

MR. FOWLER, who has recently succeeded Mr. Baker as chairman of this concern, confessed at the annual meeting held on August 30 that the directors had been unduly optimistic as to the trend of rubber prices last year. They had been misled, he said, by experts in Mincing Lane who had predicted a rise instead of the steady fall in values which took place. It strikes me that there are a good many experts of last year who are in a position to be shot at by company chairmen seeing how many companies there are which have signally failed to fulfil the promises of the prospectuses. The Venture Corporation had to express their disappointment up to date, at least, with the Madagascar Rubber Co., Limited, and the Crude Rub-

LONDON VENTURE CORPORATION, LTD.

ber Washing Co., Limited, though nothing could be said in detail about the latter, as its balance sheet is not yet published. The persistent unsatisfactory results which have attended the great bulk of wild rubber enterprises when financed in Europe, seem to have been also the lot of the Madagascar Company, where the local difficulties have as usual proved greater than was expected. There is one point about these and other rubber flotations which seems somewhat anomalous. The directors express themselves as having great faith in the future, so one would have thought that there would have been sufficient buying of the shares at the very low figures to which they have fallen, to give a little life to the market and bring prices to a higher level.

MAN AND RUBBER.

It's marvelous to contemplate
How rubberized is modern man,
How much the gum *elastica*
Pervades his whole terrestrial span.

In infancy it is his joy
A rubber rattle to expound,
And all his life a rubber ball
Provides him happiness profound.

With rubber coat upon his back,
His feet encased in rubber shoes,
He laughs the elements to scorn,
And gives the doctors all the blues.

The lightning with its forked tongue,
That flames across the vivid skies,
With rubber gloves upon his hands,
Like ancient Ajax he defies.

A rubber cord restrains his hat
From soaring in the sportive breeze,
While rubber heels make life's hard road
A dallying primrose path of ease.

His trousers' trim Apollo set
To rubber galluses he owes,
And rubber garters drive away
All wrinkles from his lurid hose.

With rubber comb his wayward locks
Are taught the proper way to go;
His molars with a rubber brush
Grow whiter than the driven snow.

He darts about from place to place,
A gay triumphant space-defier,
Unjarred by rough and rocky roads,
Soft-cushioned on a rubber tire.

And when the doctors, full of glee,
At last the hapless man persuade
To have that old appendix out,
On rubber blankets he is laid.

So when you come to look at man,
It's more than passing plain to see
How much his fate and fortune hang
Upon the gummy rubber tree.

THE accepted authority on South American rubber—"The Rubber County of the Amazon," by Henry C. Pearson.

Some Rubber Interests in Europe.

GREAT BRITAIN.

The Mincing Lane Share Exchange was recently organized in London to deal mainly in rubber and tea shares. The purpose of the organization was to inaugurate well defined rules for regulating the relations between brokers and customers, which have hitherto often been confused and unsatisfactory.

Announcement is made that the North British Rubber Company, Limited (Edinburgh), which has during the last few years erected factories at Paris, Berlin and other continental points, has decided to build a plant at Aalborg, Denmark, in connection with certain financial interests in that country. It is expected that the annual output at the start will be about 500,000 pairs of footwear.

Wood-Milne, Limited (Preston, England), are advertising a "steelrubber" solid tire for motor cars, and describe the material as "a unique amalgamation of hair-like stands of steel with finest Pará rubber," and they claim that this composition embodies the elasticity and shock-absorbing qualities of rubber with the toughness and durability of steel, and moreover that it is non-skid. Some of the footwear manufacturers have experimented with soling made of "steel-wool," which is a combination of rubber with fine steel filings, the claim being that this rendered the sole non-slipping, but the success of the steel-wool sole has not been conclusively proved. This new "steel-rubber" tire will be watched with interest.

The Awards Committee of the International Rubber and Allied Trades Exhibition, awarded on September 14 the "India Rubber Journal" (London) Hundred Guinea Shield, for the best sample of Plantation Pará rubber shown at the exhibition, to The Sungei Kapar Rubber Co., Limited, Selangor, Federated Malay States, which secured 96.5 points, and highly commended the following companies which received over 90, but under 96 points:

Siriniesia Estate, Ceylon; Tremelbye Rubber Co., Limited, Federated Malay States; Bukit Rajah Rubber Co., Limited, Federated Malay States; Highlands & Lowlands Pará Rubber Co., Limited, Federated Malay States; Culloden Estate, Ceylon; Klanang Produce Co., Limited, Federated Malay States.

The "Grenier's Rubber News" (F. M. S.) Silver Trophy was also awarded to The Sungei Kapar Rubber Co., Limited.

The award was made by Sir Henry A. Blake, G. C. M. G., president of the International Rubber Exhibition, who congratulated the company which had won both prizes and Mr. Gordon Dickson responded in behalf of the Sungei Kapar company.

The British West African Association has transferred its offices from 75a Queen Victoria street to Revenue House, 7 and 8, Poultry, and 36 and 37 Bucklersbury, London, E. C., at which address a room has been opened for the permanent exhibits of African products. There are also extensive and comprehensive reading rooms connected with the association's offices covering the various industries of British West Africa.

The North British Rubber Co., Limited, Edinburgh, makes a detachable rim which is said to be extremely easy to manipulate, a fact which is largely due to a novel expanding and contracting clinch band which carries the tire. This band is provided with a number of incurved hooks or projections, practically forming a rim, which engage with the beaded edges of the tire. One side flange is permanently shrunk on to the wheel, while the other is detachable. When the detachable flange is withdrawn, the tire attached to the band (to which the security bolts are fixed) is easily pushed on or drawn off. The tire having been placed into position, the detachable portion of the rim is inserted and is automatically locked with spring-controlled bolts. A tire can be

detached, a new tube inserted, and the whole replaced in a few minutes.

SECOND REPORT OF THE RUBBER SECURITIES, LIMITED.

THE difference between a year ago and now in the rubber promotion world is shown quite vividly in the difference between the recently issued second annual report of the Rubber Securities, Limited (London) and its first report, issued a year ago. In its first report it showed a net profit of £15,000 [\$72,997.50] made up from profits on share transactions, interests and commissions. The shareholders were paid a 20 per cent. dividend and the sum of £9,800 [\$47,691.70] was carried forward. The recent report shows a net profit for the past year of £800 [\$3,893.20]. But with the amount brought over from last year they can still make a fairly respectable showing.

THE CONTINENTAL'S NEW MANCHESTER PREMISES.

MUCH appreciation has been displayed of the new premises of the Continental Tire and Rubber Co., at 248-252 Deansgate, Manchester, which are considered to rank among the finest specimens of Manchester commercial architecture and to invite comparison with those of London.

MOTOR AND TIRE EXPOSITIONS IN LONDON.

Two interesting events are scheduled for November in London. The Olympia Motor Show will be held from 3d to 11th, while the Cycle and Motorcycle Exhibition will take place from 20th to 25th. Both displays will be at Olympia.

Tires will be prominently represented on the later occasion; some of the exhibitors being of international reputation, such as Dunlop Pneumatic Tire Co., B. F. Goodrich Co., Michelin Tire Co., and others.

WRINGING MACHINE TRADE AT THE LEIPZIG FAIR.

WHILE, generally speaking, the results of this year's Leipzig Autumn Fair, are said to be much less important than those recorded a year ago, the cautious policy of buyers is attributed to political uncertainties. Business in wringing machines, on the other hand, displayed activity in harmony with the increasing demand in this branch.

THE GERMAN RUBBER STEEL TRADE.

ACCORDING to a special report in the "Gummi-Zeitung" upon the features of the rubber heel trade at the recent Leipzig fair, the collections shown on that occasion included a large variety of shapes. Well known marks, as usual, were most in favor. Purchases for export were in the aggregate on a scale of largely augmented importance, while there was a falling off in the direct operations of American buyers.

NEW GERMAN RUBBER FACTORY.

THE establishment is announced at Frankfurt-on-Main, of a new rubber factory by Messrs. Heinrich and Louis Peters. These gentlemen have been respectively manager of the works and commercial director of the Louis Peter Aktiengesellschaft.

AUSTRALIA.

THE Colonial Rubber Co., Limited (Sydney) has changed its name to The Johnston Tyre and Colonial Rubber Co., Limited. The present directors of the company are Samuel Hordern, Anthony Hordern, W. A. Anderson, G. G. Johnston, J. H. Wylde-Brown, and A. S. Harrison.

THE SWEDISH RUBBER INDUSTRY.

SWEDISH statistics for the year 1909 indicate that there were in that country 9 plants manufacturing rubber products, employing in the aggregate 1,352 hands; the annual production equalling \$2,432,791. The value of the total output was about 2 per cent. less than that of 1908, and about 5 per cent. below the figure of 1907. About 80 per cent. of the production was in rubber shoes.

The Rubber Opportunity in Brazil.*

THEIR may be purchased in the market of the world to-day about forty distinct sorts of rubber. These vary in quality, quantity, and price very widely. Of them all none have such value in the manufacture of rubber goods as the product of the *Hevea Brasiliensis*, commonly known as Pará rubber, and grown wild on the Amazon river and its affluents. In resilience, in lasting qualities, and far more important, in its wonderful assimilative qualities as a compound receiver, no other rubber has approached it in genuine and practical value. From the time of Goodyear, Hancock, and other early discoverers of its virtues, it has been the standard, and its continued presence in the market is what has made the present expansion of the trade possible. Rubber manufacturers who add to it earths, metallic oxides, and who amalgamate with it rubber-like gums in infinite variety, sometimes fail to realize that the basic value of their goods lies in the presence of the Pará rubber.

Another fact that the industrial world fails to sufficiently recognize is the marvel that a region little known, sparsely settled, vast in extent, covered with forests that in places are impenetrable, without great banking facilities, and with no scientific assistance, should have produced the most and the best rubber, and should do it year after year.

With great forests still unexplored, with a possibility that vast areas not contiguous to the waterways may be full of mature rubber trees ready for exploitation it will be at once suggested that the opening up of such fields is far better and will yield richer immediate results than can any planting proposition. The fact is that both should be developed to their utmost. To satisfy the world's needs particularly during a period of high prices every available rubber tree should be located and tapped. It must not be forgotten, however, that rubber distant from the waterways will cost more to collect and transport, and often only the highest market prices will warrant its gathering. That planting should go hand in hand with this work admits of almost no argument. No one can forecast the future prices at which fine Pará will sell. A score of happenings may cause a drop in price—a general industrial strike in the United States and Europe—the production of some cheap plastic by synthesis that shall take the place of rubber in a multitude of places where the resilience and nerve of fine Pará are not needed—these and a multitude of other possibilities might put the price of rubber, gathered as it is, so low as to seriously embarrass the present producers. To prepare therefore for such eventualities and to meet the competition of the world of planted rubber in Ceylon, the Federated Malay States, Borneo, Java, Sumatra, India, Africa and in the British and Dutch possessions in the West Indies, rubber planting would seem to be the logical course. With all of its advantages of soil, climate, rainfall, and abundant seed supply, the Amazon country certainly should be able to produce plantation rubber as quickly, cheaply and more surely than any other part of the tropical world. As to the advantages, if Nigri Sembilan can plant the *Hevea*, the tree of the Amazon, and from young trees get 3 lbs. and 2 oz. of rubber at a cost per pound of less than 25 cents, why not Amazonas? If Partit Buntar can gather from 17 year old trees 28½ pounds in one year, why should not the tree planted on the Amazon produce 30? The practical value of half a dozen successful plantations right here among rubber producers can hardly be overestimated. By reason of the greater profits

shown, the gatherer of wild rubber would study plantation methods and wherever they could be adopted would see to it that they were.

I should be the last one to force upon the rubber gatherer any complicated tool or new process designed to do away with the present cutting instrument and coagulation by smoking. They are both simple and have given to the world the best rubber that it has. A great industry must be changed over slowly, and for wild rubber there is nothing at present that can be safely recommended as adapted to the laborers and the conditions. With successful plantations competing with the rest of the world, however, new methods are sure to be evolved which will eventuate in a larger and better production. If all of the wild rubber trees in Brazil were gathered together into plantations as they are in the Middle East the annual production could certainly be doubled, and the product be 90 per cent. fine and 10 per cent. coarse and even better. Just as eternal vigilance is the price of liberty in citizenship, so immediate and intelligent planting is the price of supremacy in rubber production.

Today this State is in an enviable position in this one particular. The rest of the world has done all of the experimenting. Twenty years ago few knew anything with certainty. Millions were spent in planting *Castilloa* on rocky hillsides or in shallow earth pockets, in expecting the *manihot* to do well in rich soil with abundant rainfall—in shade planting, sun planting, weeding, etc. Today so thoroughly is the subject known that not only does one know that the *Hevea Brasiliensis* is the best tree to plant, but every phase of it—seed selection, soil, culture, and preparation are all a matter of scientific record. As for tapping and smoking Amazonas knows her share of how to do that from long and profitable practise.

It should not be forgotten, however, that with large plantings of *Hevea*, or anything else will come new problems. There will be new tree diseases that the wild trees have never suffered from, new insect pests, of which the old rubber producer never knew. For that reason the State should have advice in the person of at least one practical scientific rubber planting expert. Later when comes the rush for lands for planting there should be experiment gardens, entomologists, mycologists, etc., who will guard the vested interests from the vengeance of jealous nature.

The *Hevea Brasiliensis* is one of the most wonderful trees in the world as regards its adaptiveness. Given moisture, heat and a fair amount of plant food, and it grows cheerfully and lustily anywhere. It, however, shows its best growth in rich alluvial soil. It never flourishes where the water stands about its roots for a long period. Inundations it does not mind if the soil be of such a nature that the water soaks in slowly and then flows away again before oversaturation has taken place. As long as there is plenty of rainfall and abundant moisture in the air, the tree will grow in any fairly rich soil. It is better of course to plant it on ground that will not be inundated, as it is safer. It is better also if possible to clear without burning, as the fire destroys much of the best of the plant food. Certainly the plantations should be located near the waterways for easy transportation, and near the villages and cities to get laborers.

With a greatly stimulated industry through planting will come, slowly at first, colonization by individual planters if they have certain government aid. Once the business is established and the great Indian coolie producing countries are assured that their laborers are to be well cared for, thousands can be

*Prize essay presented in Portuguese by the Editor of THE INDIA RUBBER WORLD at the Rubber Congress at Manaus, February, 1909. It is published now with the hope that it will draw fresh attention to Brazil's duty and opportunity.

secured. The Spanish and Portuguese possessions, and certain of the Mediterranean countries could furnish many colonists, America and Europe once interested and convinced would furnish capital if any were needed, and China and Japan would also undoubtedly furnish coolies.

Of the methods generally employed in collecting and coagulating the latex of the *Hevea Brasiliensis* which should be preferred? For wild rubber where the gatherer works away from the supervision of a foreman, it would be very risky to make any change at present. He is doing good work with simple tools that he understands. His well smoked rubber is the best in the world. For plantations I should favor the herring-bone style of tapping with some such tool as your own Dr. Huber designed for his experiments in the Botanic Gardens in the city of Pará. The latex would naturally be collected in cups, brought to a central point, strained and smoked.

I would begin to put some planting enthusiasm into every inhabitant of Amazonas. So far in this beautiful city, I have not seen a single *Hevea*. A city that owes so much to rubber should certainly have them everywhere in evidence. They should be in the parks, in the private gardens, in the suburbs. Any householder who did not possess at least one, should teach the children to know the tree and to have a pride in planting it. Once make it a patriotic duty and the whole of Brazil will go a-planting.

Unless an individual corporation, or a producing country is in a position to distance all competitors, it is likely to be put out of business. Pará rubber is not copyrighted, it is not protected by patents. The whole tropical world has the seeds of the *Hevea*, and in the Middle East alone, there are now 400,000 acres of Pará rubber trees. With the wonderful industrial expansion that the world has of late seen, and a fair promise of its continuance, the product of the Amazon and of the East can be absorbed at good prices, but from a business stand point if Amazonas does not put herself in a position to produce more rubber and cheaper rubber, it is bound to be done elsewhere with the possibility of disaster to those who can not get down to existing production prices. I believe that the Amazon can and will one day produce infinitely more rubber than it does today and will be able to market it at such a price that scores of new and great uses in the arts will develop and that the producer will make greater profits than he has enjoyed in the past.

THE "WALL STREET JOURNAL" IN REPLY TO AN INQUIRY by one of its readers regarding the United States Rubber Company's preferred stock as an investment observed as follows:

"United States Rubber first preferred stock is an 8 per cent. non-cumulative issue which has received its dividends regularly since the readjustment of the company's financial arrangements in 1905. In the last five years the average annual surplus available for dividends was equivalent to 10.35 per cent., and in the last year this surplus was equivalent to 13.83 per cent. At current levels the stock yields 7.07 per cent., which places it upon a very attractive basis of returns. The shares of this company have never been very popular with careful investors, nor have they enjoyed a very active market. The issue under consideration is not generally classed by the conservative as being representative of the highest type of industrial stocks. This is indicated by the high yield. The articles of incorporation of the United States Rubber Co. provide that in case of liquidation or dissolution the first preferred stockholders shall be entitled to receive par for their stock, having preference to this extent over the second preferred and common stock. According to the last annual statement full assets, taken at the figures carried by the company, are sufficient to cover the first preferred stock approximately twice over."

"THE FIRST DOMESTIC RUBBER,"

THE National Rubber Co.—not the great corporation at Bristol, Rhode Island, but a younger concern with headquarters up Harlem way in New York, is to give a "new impetus to the rubber industry" and a "new industry to the United States." This—again we quote—is "because of 'National,' the first domestic rubber."

The fact that the framers of the circular apparently know nothing of the rubber gathering that accompanied the discovery of Colorado's *Picradenia floribunda utilis* or the guayule fields of Texas and the factory at Marathon does not prove that they have nothing. It simply puts them third instead of first.

Passing over the statement that the discovery was made by a "good" American citizen, and that the company is capitalized "at the low figure of \$200,000," we come to the source of supply. Still again to quote:

"The company has an unlimited supply of raw material * * * and strangely wonderful it is in the Pacific ocean, on the shores of the western boundary of the United States. It is in such abundance that it is a nuisance and the government has to pay for clearing the channels of it in order to make them navigable."

Strangely wonderful, indeed, also wonderfully strange.

"The raw material costs nothing except for hauling from the water to the factory. Unlike other rubbers, the cost of production of 'National' will be low. It is estimated that the maximum cost will be 25 cents per pound. This cost of production is unprecedented." [Planted *Castilloa*, planted *Hevea*, *Guayule* and several other rubbers cost from 20 to 25 cents a pound, so that unprecedented is not exactly the word. Why not say 'uncomprehensible?'] "The company has decided to sell this domestic rubber at not less than 60 cents per pound. * * * The company proposes to erect a plant which will produce at least a ton per day. The profit per ton would be \$500 a day—or taking 300 working days in the year, the annual profit would be \$150,000."

Far be it from us to discourage any attempt to add to the world's sources of rubber. Land plants are rubber producers, why not sea plants? Nevertheless the whole circular shows that the promoters are not at all versed in rubber. They doubtless believe what they state, but they should have more information to give before they offer one dollar's worth of stock to the public. If it is a proposition that is as they claim, why has not some rubber factory used the product? Who knows that even if they can produce a plastic say from sea weed that it will take up compound and vulcanize as does rubber?

The promoters are in error in so many places throughout their circular, are they not mistaken as to their product? They should have it analyzed to see whether they are producing rubber or some analogous product such as cold consommé.

* * *

Since writing the above a sample of the "National" rubber, which is the product of kelp grown on the Pacific coast, has been sent us for examination. The sample looks very much like compounded sheet, is soft and doughy and from a very brief physical examination would seem to be the kelp product mixed with rubber dough. That, however, is not assumed with any degree of finality.

DUTCH CAPITALISTS AND BANKERS HAVE SECURED CONTROL of 9,000 acres of cotton lands in Bolivar County, Miss., near Deeson. It is proposed to charter the enterprise with a capital of \$500,000 or more as the Delta Farms Co., and to grow choice cotton and farm produce generally on the property, operating it as a series of ideal Southern plantations.

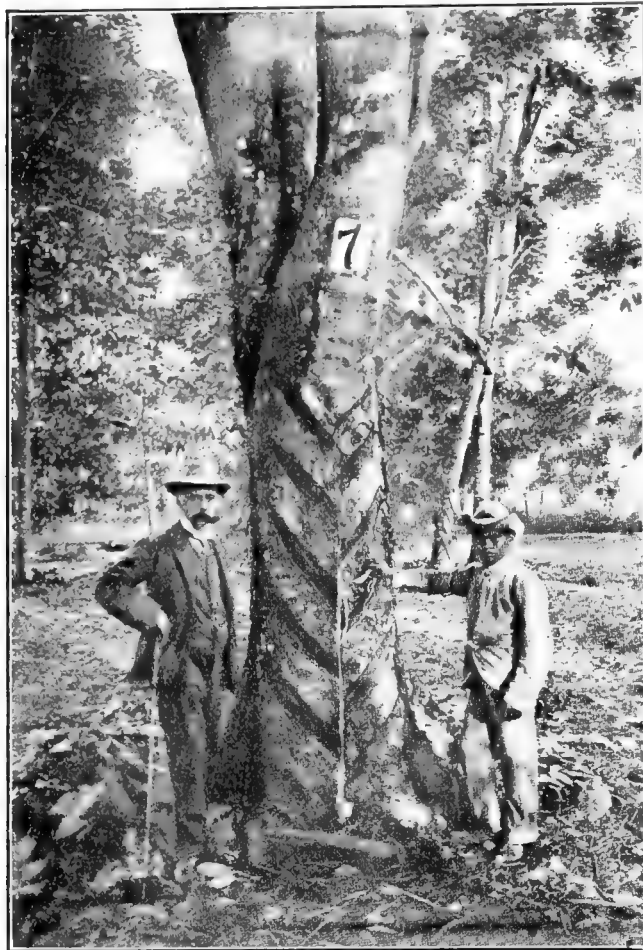
THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

Some Notes on Rubber Planting.

RUBBER PROGRESS IN THE MALAY STATES.

THE government director of agriculture in the Malay States recently sent out his report for the year 1910. It is a document that must prove most encouraging to the rubber planters in that part of the world as well as most interesting to people elsewhere interested in the progress of this industry.

The rubber output for the Federated Malay States for the year 1910 was 12,563,220 pounds, an increase of over 100 per



A 30-year old PARA TREE IN SINGAPORE, SHOWING TAPPING; DR. HENRY N. RIDLEY, DIRECTOR OF THE ROYAL BOTANICAL GARDEN OF SINGAPORE, STANDING AT THE LEFT.

cent. over the output of the preceding year, and nearly four times as great as that of 1908. The director makes the following exceedingly optimistic prophecy for the next five years. He estimates the increase for the present year over last at 10,000,000 pounds; the increase for 1912 at 15,000,000 pounds; for 1913, 15,000,000 pounds, and for 1914 20,000,000 pounds. He estimates in the absence of any untoward accidents that by 1916 the entire output from the Malay Peninsula will be 130,000,000 pounds on the present acreage alone, not taking into consideration the product from any new acreage.

In point of acreage there was an increase last year of 48,813 acres against an increase of 28,905 acres in 1909. The total acreage planted in rubber at the end of 1910 in the Federated Malay States was 245,774 acres, an increase of 25 per cent. over the preceding year. The director speaks of the great

variation in the price of rubber during the year 1910, prices ranging in the Malay States from \$2.30 to \$1.14, but even at this low price there was a very consoling margin of profit, as he estimates the cost of producing rubber at 36 cents a pound.

Some very helpful suggestions are made in the report, intended primarily for rubber planters in that section, but undoubtedly of interest and probably of value to rubber planters in other parts. The matter of growing other crops on the rubber plantation during the early years of the trees is discussed in some detail. These crops are divided into two classes—catch crops and cover crops. By catch crops are meant all those crops that are planted primarily for revenue to pay or help to pay the expenses of the plantation while waiting for the rubber to mature. The principal crop of this character in the Malay States is coffee, but evidently experience has shown that these revenue producing crops are not altogether profitable, as the percentage of plantations where they are to be found was only 6 per cent. in 1910, as against 10 per cent. the preceding year. The disadvantage of these catch crops lies in the fact that when they have served their purpose they must be wholly extirpated; otherwise their roots breed root diseases which attack the rubber trees.

The only object of the cover crop is to keep out the weeds until the rubber trees are sufficiently advanced to effect this result, but experience has shown that weeding is preferable to a resort to any cover crop unless possibly one of a leguminous nature like ground-nuts, which will not only keep out the weeds, but will also bring in some revenue.

On the subject of tapping the report, in spite of the many new inventions, still recommends the simple tools, the gouge (straight or bent) and the farrier's knife, which have hitherto been in vogue. Much stress is laid upon the necessity of avoiding improper tapping, especially cutting through to the wood, and the suggestion is offered that wherever such cuts are made in the tree, that they be painted with cold coal tar not only to save the tree from the attacks of wound-fungi and borers, but also to make these instances of bad tapping conspicuous, and therefore more likely to be avoided in the future.

The report on the whole is certainly an encouraging document, and if the director's prophecy of 130,000,000 pounds of rubber for the Malay States in five years' time comes true and rubber is selling anywhere near its present price at that time the outlook for the Malay planters is indeed bright.

LARGELY INCREASED EXPORTS OF MALAY RUBBER.

Not only the aggregate exports of plantation rubber from the Federated Malay States for the first seven months of 1911, form a record as to quantity, but there has been a separate record achieved for each month. The totals for the period named during the last three years was respectively:

1909	Pounds	2,998,428
1910		6,248,260
1911		9,931,390

PLANTING IN SUMATRA.

It is reported that in consequence of the efforts of the General Rubber Co., of New York, to rapidly develop its recently acquired Sumatra holdings, the pay of Japanese coolies has advanced to the equivalent of \$46 to \$48 per head against \$32 to \$36 a year or two ago.

A BOOK for rubber planters—Mr. Pearson's "What I Saw in the Tropics."

PLANTATION NOTES.

Year first shown is date of registration.

ANGLO JAVA ESTATES. Report for year ending March 31, 1911, states that the area now planted with *Hevea* at Limburg, Landen, is 5,101 acres, with approximately 554,063 trees. Tapping commenced in November, 1910, since which time the yield had been 531 pounds from the 6,638 trees tapped by end of March. Yield from the Djarangan estate, 3,018 pounds. Average cost in gold for *Hevea*, *Ficus* and *Castilloa* equalled 64 cents; sales averaging \$1.12. Unsold stock valued at 80 cents.

SUMATRA CONSOLIDATED RUBBER ESTATES, LIMITED, Langkat, Sumatra. April, 1909, 8,000 acres. Planted area 1,972 acres, with 200,000 Pará trees. Commenced tapping June, 1911; expect 30,000 pounds dry rubber during twelve months. Capital increased to equivalent of \$500,000 by creating 25,000 shares of \$5 each.

SUMATRA PROPRIETARY RUBBER PLANTATIONS, LIMITED, Langkat, Sumatra. May, 1909, 4,000 acres. Planted area 827 acres, with 90,220 trees. Further acreage being cleared.

TENASSERIM HEVEA PLANTATION, LIMITED, Mergui, Lower Burma, April, 1910, 5,000 acres. Planted area 500 acres, with 193 trees per acre. Would require to raise \$10,000 to \$15,000 to complete clearings and start tapping. Prospect of a first-class rubber plantation. Plants have started to put out young shoots. Few, if any, vacancies, expected.

DEVITURAI RUBBER & TEA ESTATES COMPANY, LIMITED, Elpitiya, Ceylon. March, 1910, 1,902 acres. Area planted in rubber, 1,095 acres. Total crop, January to June, 1911, 33,970 pounds; January to June, 1910, 12,262 pounds.

MALANG RUBBER ESTATES, LIMITED, Java. March, 1910, 1,394 acres. Area planted in rubber, 1,080 acres. Harvested in June, 310,323 pounds of dry rubber, 15,000 trees being tapped. Plants absolutely free from disease.

PANITYA TEA AND RUBBER COMPANY, Ceylon. April, 1909, 1,028½ acres. Under cultivation, 1,028½ acres. Crop of dry rubber, January 1 to July 31, 1911, 26,170 pounds, against 8,581 pounds for corresponding period of 1910.

RANI TRAVANCORE RUBBER COMPANY, LIMITED, Travancore, Southern India. Total area, 3,504 acres, of which 2,790 acres are planted with 495,000 Pará rubber trees, averaging over five years old. Began to yield in 1910, when 41,983 pounds were produced. Crop estimate for 1911 of 145,000 pounds will be largely exceeded, returns up to July 31 being 5½ times greater than in 1910.

JERONG (PERAK) RUBBER COMPANY, LIMITED. Dry rubber secured to June 30, 1911, 147,948 pounds, against 101,140 last year. Sales to June 30 averaged \$1.48½ against \$2.55 in 1910.

KEPITIGALLA RUBBER ESTATES, LIMITED, Ceylon. Established April, 1906; 3,517 acres. Total area under rubber, 3,127 acres. Output for eleven months to February, 1911, 39,895 pounds. Estimated crop for 1911, 72,000 pounds. Dividends, 1910, 4½ per cent; 1909, 4 per cent.

JURU ESTATES, LIMITED, Penang, Federated Malay States. January, 1910, 2,079 acres. Area under cultivation, 1,157 acres. Trees growing well, many approaching bearing stage. Estimate for 1911, 4,470 pounds dry rubber.

LINGGI PLANTATIONS, LIMITED, Federated Malay States. Reconstructed 1905; 10,017 acres. Area planted in rubber, 5,753 acres, with 285,000 trees, besides 450 acres being planted. Tapping carried out over 2,030 acres. Average prices realized and cost of production:

	1910.	1909.
Average price realized.....	\$1.39	\$1.46
Cost, f. o. b.....	\$0.30½	\$0.23

Quantity harvested in 1910, 878,754 pounds, against 545,219 pounds for 1909. Estimate for 1911, 1,120,000 pounds. Final dividend of 87½ per cent, for 1910, in addition to three interim dividends of 50 per cent. each. An interim dividend of 43¾ per cent. has been declared for 1911.

KIVALOE RUBBER ESTATES, LIMITED, Sumatra. February, 1910,

18,000 acres. Have planted 782 acres with 104,000 *Hevea* trees, 134 trees to acre. Will continue planting. Expect to tap in fourth year. Will plant a certain amount in coffee.

DENNISTOWN RUBBER ESTATES, LIMITED, Krian, Federated Malay States. November, 1909, 2,553 acres. Have planted 1,134 acres in rubber. Planting of reserve land to be rapidly proceeded with. Complete factory, in course of shipment to estate. Propose increasing acreage in cocoanuts. Estimated year's production, 49,500 pounds. Average equalling \$1.22 gold obtained during past year for rubber.

KUALA PAHI RUBBER ESTATE, LIMITED, Kelantan, Malay States. January, 1910, 2,500 acres. Have 526 acres planted and 257 acres ready for planting. Expect funds in hand will suffice to bring estate into cultivation.

KAMPONG KUANTAN RUBBER COMPANY, LIMITED, Selangor, Federated Malay States. Original rubber company started planting 1906; 1,000 acres, all planted by 1908. Output, 1910, 6,991 pounds. Estimate for 1911, 70,000 pounds. Profit on few months' production absorbed as further capital.

JASIN (MALACCA) RUBBER ESTATES, LIMITED, Malacca Straits Settlements. May, 1910, 1,176 acres. Had planted 748 acres by January, 1911. Production for 1910, 3,460 pounds rubber; average price equalled \$1.32 gold. Expect present capital will suffice to bring 1,000 acres into bearing.

JUGRA ESTATE, LIMITED, Selangor, Federated Malay States. August, 1900, 2,920 acres. Area planted in rubber, 865 acres. Production for year, 130,393 pounds, average price obtained equalling \$1.55½. Final dividend of 35 per cent., making total of 60 per cent.

KLANANG PRODUCE COMPANY, LIMITED, Selangor, Federated Malay States. Established May, 1899; 2,129 acres. Area planted, 1,429 acres. Harvested in six months, ending June, 1911, 64,885 pounds, of which 37,174 pounds sold at average equivalent of \$1.32½ per pound.

TANGOEL RUBBER ESTATES, LIMITED, Besoeki Residency, Java. February, 1910, 989 acres. Area planted, 910 acres, with Pará rubber trees. Dividend expected for year 1911-12. No fresh capital required.

PANAGULA RUBBER COMPANY, LIMITED, Ceylon. July, 1910, 835 acres. Area planted by original Ceylon company, 835 acres. Output in 1910, 34,792 pounds, from which an average equalling \$1.34 was realized. Estimate for 1911, 70,000 pounds. New factory required for Etheljadoda Estate. Chairman now in the East will visit property.

LONDON SUMATRA RUBBER AND PRODUCE ESTATES, LIMITED, Sumatra. December, 1909, 7,533 acres. Area planted, 1,538 acres. Estimated crops 1911, 3,000 pounds; 1912, 16,000 pounds. Arranging debenture issue to provide funds required for further development.

CICELY RUBBER ESTATES COMPANY. The sixth annual report of this company shows a net profit on a paid-up capital of £16,000, of £36,941, enabling the directors to pay a dividend for the year of 205 per cent. on the preference and 200 per cent. on the ordinary shares, leaving £4,090 to be carried forward, after carrying £6,000 to a special reserve. The year's rubber harvest was 170,700 pounds, which cost 1s. 2½d. per pound and sold at a net average of 5s. 7¾d. per pound. The company has 829 acres planted to rubber near Teluk Anson, Lower Perak, Federated Malay States.

RUBBER CULTURE AT FORMOSA.

Owing to the favorable prospects resulting from the experiments in rubber planting, made by the authorities at Formosa, further efforts in that direction are contemplated. Mr. T. Kawakami, who discovered the existence of rubber trees at Formosa, has been sent to the Straits Settlements, Borneo, and other tropical districts where rubber is grown, for the purpose of inspecting the condition of rubber planting at those points, and gathering information on the subject.

"CASTILLOA" CULTURE IN JAVA.

SEVEN years ago there were on the various plantations in Java 119,285 *Castilloa* trees while at the same time there were only 24,023 *Hevea* trees. Since that time, however, the planting of *Hevea* has increased with great rapidity until at the close of 1910 the *Hevea* trees in Java numbered 1,395,999. The planting of *Castilloa* on the contrary has shown a number of fluctuations, some years increasing and some decreasing while the number of trees planted last year was only 24,872 and the total number of *Castilloa* trees in Java at the close of 1910 was 388,862 or not much more than one-third of the *Hevea* trees.

Notwithstanding the obviously greater popularity of the *Hevea*, owing to its lower percentage of resin and its greater yield under favorable conditions, the *Castilloa* has some advantages which the Java planters have come to recognize; namely, it can be grown at an altitude where the *Hevea* will not flourish, and it is more suited for planting in conjunction with other growths as it is practically self-pruning. While the *Castilloa* tree can be grown successfully at an altitude that would be distinctly unfavorable to the growth of the *Hevea* it does better and comes to a yielding condition earlier when planted at a lower altitude.

In the general report for 1910 prepared by the Netherlands East India Committee there is a very interesting paper by Fr. Gierlings, who has had an extensive experience in the planting of *Castilloa* at Kediri, in Southern Java. He finds that the culture of *Castilloa* is easy where one has perfectly fresh seed, seed older than three weeks giving but unsatisfactory results. He has noticed that in wet years the *Castilloa* in Java blossoms twice in a year, the first seed, which ripens in August or September, giving but poor returns for planting. The second seed, which becomes ripe in December or January gives much more satisfactory results. He and neighboring planters have tried many experiments in *Castilloa* planting and have finally adopted the plan of making their plantings 12 feet apart in an easterly and westerly direction and 24 feet apart from north to south in closely grown coffee gardens. In this way they get about 100 trees to the acre. For the first two years the trees apart from the coffee trees grow more rapidly, but after the *Castilloa* among the coffee trees has risen above the coffee its growth is more rapid than that of the trees in the open.

While there are many complaints in other places in regard to diseases and insect ravages the *Castilloa* of Java appears to be practically free from these pests and even where the bark has rotted because of careless tapping and considerable surface of wood is exposed, the trees still appear to be fairly immune from insects.

Mr. Gierlings has devoted a great deal of time to experiments in tapping. His latest method, tried last year, has given the best results and it is well worthy of a brief description. His method is as follows:

With a knife like that shown in the illustration, and which is made by the native blacksmiths, horizontal incisions are made beginning about one foot from the ground and going around one-

quarter of the circumference of the tree. These incisions are made about three inches apart, being cut half an inch deep, or down to the cambium, and are continued until there are 50 of them, reaching to the height of 13 feet. The same operation is repeated on the next quarter of the tree, beginning at the top and working down, but a narrow strip of bark about one inch in width is left between these two series of horizontal cuts. The accompanying diagram shows the general appearance of the tree after the incisions are made.

After a rest of three months the other half of the tree is tapped in the same way and three months later the operation is repeated on the first half of the tree, the incisions, however, being made about half an inch below the original cuts. As the tree is allowed to lie idle during the three months' flowering season, it is tapped only three times a year. This method of tapping produces about eight ounces of dry rubber a year from trees eight to nine years old.

The latex exuding from these incisions is in the form of a soft mass. With every tapper is a woman, whose duty it is to



"CASTILLOA" PLANTED 1901, SHADING COFFEE.

collect the latex. Her equipment consists of a large bamboo pot, a small bamboo pot, a spoon and some bamboo spatules. The large pot is equipped with a sharp point at the bottom so that it can be stuck into the ground. Both this and the small bamboo pot, which she carries with her, are partly filled with water. She mounts a ladder to the uppermost incision and works her way down the tree scraping the latex with the bamboo spatule into the spoon and pouring it into the small pot, which when full is emptied into the larger one. The contents of the larger pots are collected by men and carried to the factory where the latex is passed through a coarse sieve and then diluted with water, and passed through a finer sieve into a washing vat, usually made of galvanized iron and holding from 25 to 75 gallons. After the liquid has settled the rubber globules come to the surface and the remainder of the liquid is drained off through an outlet at the bottom. Fresh water is then poured into the vat, the mixture stirred and allowed to settle, and again drained off. This is repeated until the latex looks pure, which generally requires three or four washings. The washing of the latex is usually completed the day it is gathered.

The latex is then coagulated in round enamelled pans. About a pint of latex is poured into each pan together with one-third of an ounce of a 40 per cent. solution of formaline, the two being well stirred together. In the meantime a boiler of water has been heated containing about one gram of 98 per cent. acetic acid per quart of water. When the water is close to the boiling point three-quarters of a quart is poured into each pan of the latex. In this way the latex is heated to from 150 degrees to 160 degrees Fahr. and immediately coagulates and floats on the top of the water in sporgy cakes. These cakes are pressed together and the water poured out but is saved and the latex it contains secured later. The coagulated cakes are immediately rolled into thin sheets. These are placed again in vats with clean water to which a very little formaline has been added and allowed to remain there for a few hours and then removed to the smoking and drying house, a building with perforated iron floor, on which drying racks are placed.



KNIFE FOR
TAPPING
Castilloa.

The temperature in the smoking house is kept at about 110 degrees Fahr. and a dense smoke is developed by means of burning damp grass. The sheets of rubber remain in this smoke house for two or three days and get about one-half dry. They are then pressed into small squares weighing about 3½ pounds. These are placed in another formaline solution for a shorter time and then taken again to the smoking house for a final drying. The rubber is allowed to retain about 5 per cent. of water when it is shipped, experience showing that it dries out on the way and that it keeps much better. The square blocks are packed in smooth finished cases made expressly for them.

Regarding the cost price of rubber nothing absolutely definite, in Mr. Gierling's opinion, can be said as so much depends upon wages and weather. He found that 1909 with a small yield per tree but with generally favorable weather and low tapping expenses his rubber cost him when put on board the steamer at Sourabaya about 16 cents per pound. The following year with a larger yield per tree but with very unfavorable weather and higher wages for tapping his rubber cost him 23 cents per pound, averaging about 20 cents a pound for the two years.

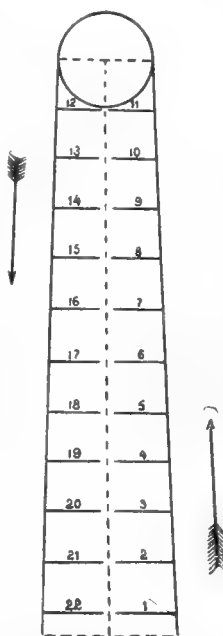


DIAGRAM SHOWING
Castilloa TAPPING.

THE LIFE OF TAXICAB TIRES.

In a report of the Vienna Chamber of Commerce, an interesting calculation is quoted as to the consumption of rubber involved by the extension of taxicabs. The distance covered every day by a "taximeter" is estimated as about 60 miles, making on the basis of 250 working days, about 15,000 miles a year. The life of a set of tires being from 4,000 to 6,000 miles, this rate of wear representing for each cab three to four sets a year. At 45 pounds a set, the annual consumption per cab would equal 135 to 180 pounds of rubber.

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

RUBBER AND BALATA NOTES FROM BRITISH GUIANA.

(By Our Special Correspondent.)

ONE of the more recent New York rubber importers, in order to be sure of a supply of balata, has acquired numerous grants within a year, and is now shipping by each outgoing steamer two or more tons of sheet balata. It might be added, at this juncture, that American importers or brokers, as a whole, have not gone into rubber culture (with the possible exception of Central America), whereas American manufacturers are planting or contemplating planting both in British Guiana and the Far East.

There is a royalty of 2 cents a pound both on rubber and balata, but it is well to mention that on the latter there is also an export duty of 2 cents a pound imposed only this year. In other words 4 cents is collected by the Government on each pound of balata leaving the colony.

Considering the heavy yield of a balata tree and the vast areas of Crown Land given over to the licensees at a small fee, there should be no cause for complaint.

On the other hand on account of the disappointing yield of the wild and cultivated *Sapium* rubber trees, the suggestion of an American planter, that some assurance be given that no future export duty should be imposed on rubber, is certainly within the bounds of reason. In fact it is believed if the present royalty of 2 cents per pound on rubber were abolished the colony would benefit thereby. Certainly Ceylon is prosperous enough without a duty on rubber and why not encourage capital into such a favored spot as this?

That British Guiana has carried off the prize at the Rubber Exposition for the best cultivated rubber (and of the *Pará* variety) in the West Indies, is cause for continual rejoicing by rubber men and by the local press. It is to be hoped that American magazine writers will please take notice that growing *Pará* rubber has passed the doubtful stage in British Guiana.

The labor question is causing some of the newer English companies engaged in balata production some anxiety. The negro balata bleeders have been absconding with money advances and with supplies more than ever before. The laborer argues that some of the land has no balata trees and he cannot remain way back in the bush and starve. It is whispered cautiously that some of the balata companies floated at the height of the boom were saddled by local promoters with poor grants. The old time merchants, it is said, are still holding the best balata land and making money.

There is no complaint with the coolies on the rubber plantations, which are progressing as fast as seeds are obtainable.

There has been an association of balata companies formed to try to correct the absconding "nigger" bleeders. On account of the troubles this year with balata bleeders the output will be short.

RETIREMENT OF SIR F. HODGSON.

More than the merely formal appreciation of his services is being expressed in regard to the impending expiry of Sir Frederic Hodgson's term of office as Governor of British Guiana. During the past seven years he has succeeded in freeing the colony of the floating debt under which it had been struggling, and which at one time amounted to upwards of \$800,000. In pursuance of his policy of encouraging the people to take to the land, a Government Committee over which he presided, recently decided to recommend the establishment of agricultural loan banks or co-operative credit institutions.

Under his administration, sugar has continued the chief industry of the country, while the export of diamonds is regaining its old position and is making up for the decline in shipments of gold. Balata and rubber have made considerable progress; the railway survey made last year having been intended to promote these and other industries, by a knowledge of the resources

of the interior and by accurate estimates of the cost attending construction.

THE LABOR COMMISSION REPORT.

While it avowedly does not furnish a complete reply to the problems it was expected to solve, the report of the Labor Commission quotes the opinion generally entertained, that the class of laborer most suited to the present needs of the colony is the East Indian. In default of a sufficient number of recruits being available, then the alternative of Javanese or West Indian labor is referred to.

The report is signed by Messrs. Robert Duff, chairman; J. B. Harrison, A. P. Bugle, Jules Pairaudeau, J. Louis Walton, R. H. Lyndon Kerr, James Winter, James Andrew, and J. W. Downer.

RESULTS AND PROSPECTS OF BALATA INDUSTRY.

In commenting upon the figures quoted in the INDIA RUBBER WORLD of September, 1911 (page 485), a writer in a London financial journal remarks that as the whole balata producing area of the colony has not yet been exploited, there is still plenty of room for the development of this valuable economic asset. Balata, it is added, commands its own market (and its own price) quite independently of rubber conditions. For many commercial purposes it is an essential requirement for which no substitute is known. In further illustration of this point, the writer adds:

"Nature has already provided the balata forests in lavish profusion; no planting has to be done, and no expense whatever is incurred for 'upkeep.' The position is or should be entirely governed by good management on the spot. * * * The position of balata today is impregnable and, moreover, is free from most of the drawbacks to which rubber is subject. * * * Balata can afford to smile, and smile again, while rubber sulks in a fit of acute indigestion. You can grow tappable rubber in five short years. But you cannot grow tappable balata under thirty years. *Voilà le grand secret.*"

VENEZUELAN BALATA IN BRITISH GUIANA.

With reference to the proposal which has been under investigation by the Colonial Government, of repealing the law prohibiting the importation of balata from Venezuela, a statement of Señor Monagas, the local Venezuelan Consul, is quoted by the Georgetown *Daily Argosy*. It is to the following effect:

"Not only are Venezuelans willing to pay the equivalent of the royalty duty imposed on locally-obtained balata and the export duty, but they are quite agreeable to paying any other reasonable duty which the Government of this colony may impose. In fact, the man who first applied to Sir Frederic Hodgson for permission to pass his balata *via* this colony offered to make a deposit of \$10,000 for the privilege, but this offer was not accepted in view of the law that obtains at present."

It is understood that this question forms one of those to be treated by the Commission of Inquiry into the balata industry, the appointment of which has recently been advocated by a deputation from the Balata Association, which waited upon the Acting Governor.

WORK AT THE GOVERNMENT INDUSTRIAL FARM.

According to the report of the Government Industrial Farm at Onderneeming for the school year 1910-11, the experimental cultivation of Pará rubber (*Hevea brasiliensis*) has been considerably extended during the year, seedlings having been planted throughout the coffee fields.

Under instructions from the Director of Science and Agriculture the experimental tapping of five Pará rubber trees was commenced towards the close of the year, the half-herring bone system, covering one-quarter of the girth, being employed. The

trees are being tapped on alternate mornings and a careful record of the yield is being kept.

Other varieties of rubber trees which are being experimented with at the station include *Sapium Jenmani*, *Funtumia Elastica* (West African rubber) and *Castilloa Elastica* (Central American rubber). The *Sapium Jenmani* plants are making particularly fast and vigorous growth—the *Funtumias* are growing slowly but appear healthy and vigorous, while the *Castilloa Elastica* trees must be reported as having failed.

"CEARA" RUBBER IN THE BRITISH GUIANA HINTERLAND.

One of the most competent authorities on the rubber and balata industries of British Guiana is Mr. John Ogilvie, in charge of the balata grants belonging to Messrs. Garnett & Co., Ltd., and who has recently declined the appointment of local manager offered him by the Amsterdam Balata Company. In a recent interview with a representative of the Georgetown *Daily Argosy* he spoke as follows with regard to Ceara rubber:

"Some experiments are being carried out in various parts of the hinterland with Ceara rubber. The trees I have planted are doing fairly well, though my experience has taught me that rubber trees will not grow in the savannah unless the ground is carefully prepared. Some of the trees planted by me have attained a good height and are 22 inches in girth, though on July 25, 1909, when I photographed them first, they were just tiny saplings. They are going to yield in a satisfactory way, tapping experiments already carried out having convinced me thoroughly of that."

INCORPORATION OF SANTOS DE CAIROS & CO., LTD.

Advices from Georgetown report that the business of Messrs. De Cairos Bros. & Co. has been incorporated and formally registered under the Companies' Ordinance. The style of the new company, which has a capital of \$180,000, is Santos, De Cairos & Co., Ltd.

FLUCTUATIONS IN BALATA PRICES.

The following are recorded fluctuations in the prices of block and sheet balata of fair average quality:

BLOCK BALATA (Cents per pound).			
	Lowest.	Highest.	Average.
1909.....	42 cents	60 cents	51 cents
1910.....	58 "	96 "	77 "
1911.....	56 "	68 "	62 "

SHEET BALATA (Cents per pound).			
1909.....	54 cents	62 cents	58 cents
1910.....	59 "	\$1.16	88 "
1911.....	76 "	88 "	82 "

Consumption is said to have increased in America, particularly in sheet balata for use in cable manufacturing.

ON THE ACTION OF CHROMYL CHLORIDE ON INDIA RUBBER, by D. Sperce and J. C. Galletly. This preliminary communication, after referring to the well-known reactivity of rubber towards sulphur chloride, deals with the action on rubber of chromyl chloride. In their researches, the authors investigated the action of chromyl chloride on rubbers of different botanical origin, finding that in every case the substance reacts with india rubber to form a perfectly definite compound.

Among the experimental features dealt with are, preparation of the chromyl compound, decomposition of the chromyl chloride derivative of rubber by water, production of an aldehyde and decomposition by dialysis. The authors state they are now engaged in isolating the aldehyde and the insoluble chromium, with a view to further investigation.

A BOOK for everybody interested in tires—Rubber Tires and All About Them—this office.

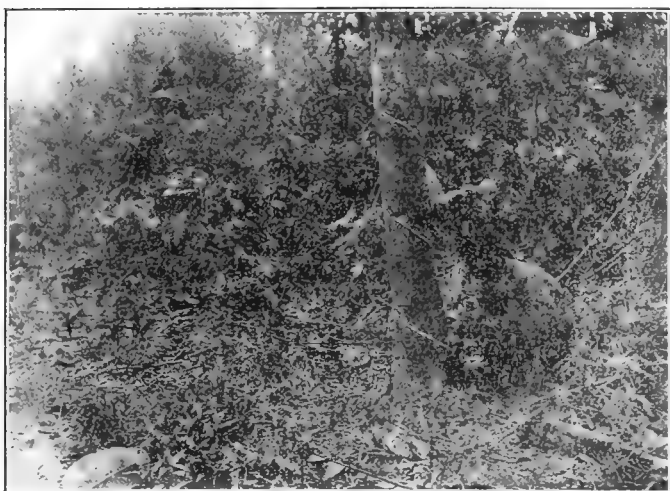
RUBBER IN THE REPUBLIC OF HONDURAS.

THE growing importance of Honduras as a source of rubber production is demonstrated by the figures of the United States imports from that country.

Fiscal years.	Pounds.	Value.
1906	93,126	\$55,709
1907	104,334	76,444
1908	102,010	65,865
1909	76,133	39,985
1910	148,813	117,808

Honduras has an area of 45,000 square miles, while the population, is believed to exceed 600,000.

The temperature varies in the highlands between 41 degs. F.



COLLECTING LATEX IN BAGS INSTEAD OF CUPS.

and 59 degs. F., while in the valleys and on the coasts it never exceeds 86 degs. F. The great fertility of the land, due to the richness of the soil and to the abundance of water, renders cultivation profitable.

The total imports of the republic for the fiscal year 1908-9

receivers of the concessions. All machinery and utensils for any industry are exempt from custom duties and other taxes.

At the recent Pan-American Commercial Conference, Mr. Guillermo Moncada, Consul-General of Honduras in New York, called attention to the fact of Honduras being completely unexplored, and urged that its virgin lands, adequate for any cultivation, well provided with water, and extremely fertile, offer great advantages for the investment of capital.

According to an official consular report from Ceiba, a private company, organized last year in Honduras, obtained title to 3,000 acres of virgin land peculiarly adapted to the cultivation of rubber, and has been planting on a large scale. It is said to be the intention of this company to prepare an additional area



Castilloa BISCUIT COAGULATED WITH AMOLE.

sufficient to cultivate several hundred thousand trees, transplanting them from extensive nurseries as the land is prepared. The report adds that there is no cultivated rubber now produced in that locality, but that the demand for the wild "scrap" rubber which thrives profusely and is gathered by the Indians,



PRESSING FRESHLY COAGULATED RUBBER.

equalled in gold \$2,581,553, and the exports \$1,990,601; the share of the United States being respectively \$1,769,876 and \$1,834,565.

Under the laws of Honduras the acquisition of all kinds of property is extremely easy, and its disposal absolutely free from restrictions. The government also grants agricultural lands free from taxes, these lands being deeded after due cultivation to the



DRYING RUBBER.

had resulted in the local price advancing from 38 cents to \$1.33 gold per pound.

The illustrations herewith show progress at the plantation "Boca Viejo." The trees under cultivation are *Castilloas*, and are growing wonderfully. The adjacent lands have also many wild *Castilloas* which the owners of the plantation are tapping.

THE FUTURE OF GUAYULE.

"GUAYULE GUM," as it is officially called, has appeared in the United States statistics since 1909, among the "Imports for Consumption," though it is for the first time separately shown in the "Imports of Merchandise" for the fiscal year ending June 30, 1911. Grouping the two returns, the following result is obtained:

UNITED STATES IMPORTS.

Guayule.

Fiscal years to June 30.	Pounds.	Value.	Average per lb.
1909.....	10,096,549	\$3,186,376	\$.315
1910.....	19,768,424	8,951,441	.452
1911.....	19,749,522	10,443,157	.530

Other India rubber.

Fiscal years to June 30.	Pounds.	Value.	Average per lb.
1909.....	79,183,245	\$58,451,500	\$.739
1910.....	79,411,844	91,419,990	1.150
1911.....	72,046,260	77,204,603	1.071

Thus in 1910 and again in 1911, the imports of guayule gum were almost double those for 1909; the average price meanwhile increasing from 31½ to respectively 45 and 53 cents; equalling a total advance of almost 70 per cent., while the average advance for other descriptions of india-rubber has only represented about 45 per cent., for 1911 as compared with 1909.

The enhanced importance thus demonstrated of guayule, as an element in future rubber supplies, gives special interest to the work on the subject, by Dr. Francis Ernest Lloyd,* briefly reviewed in the September issue of THE INDIA RUBBER WORLD.

PROPERTIES OF GUAYULE.

When some time ago it became more generally known that the guayule plant, which grew in abundance in the desert country of northern Mexico, contained an economically valuable amount of rubber, investigations of a minute character resulted in the discovery of the fact, that guayule yields about 10 per cent. of its weight, of "bone dry" marketable rubber.

In 1888 a quantity of 100,000 pounds of the entire shrub was shipped to New York, apparently under some misunderstanding of instructions. Although freight had of course to be paid on the wood, and the commercial result was thus evidently unsatisfactory, the yield of 18 per cent. of rubber, the quality of which was described as equal to the best grade of Centrals, was regarded as a proof of the industrial value of the plant. Its treatment in Mexico itself was evidently necessary, and in 1901 that industry was started on a small scale by German experts who had settled in that country.

GUAYULE A COMMERCIAL SUCCESS.

The beginning of commercial success in the extraction of rubber from the guayule shrub by the mechanical method, dates from the building about 1905 of a large factory at Torreon by the Continental-Mexican Rubber Company, where the results of earlier experiments were utilized and further developed. From that time forward considerable capital (chiefly American) was invested in the new industry, extracting plants having been established at San Luis Potosi, Saltillo, Monterey and Gomez Palacio, as well as at Torreon and Jimulco.

EARLIER MEXICAN EXPORTS OF GUAYULE.

As shown by the United States statistics already quoted, the imports of guayule gum in the fiscal year 1909 amounted to about 10,000,000 pounds. Dr. Lloyd's estimate of the total Mexican exports for the four fiscal years ending June 30, 1909, is 20,000 tons,

or 40,000,000 pounds, of which he states 80 per cent. went to the United States; the last-named quantity corresponding approximately with the American figures of 1909.

YIELD OF GUAYULE.

It is at this point that Dr. Lloyd's reference to the amount of guayule rubber exported, renders specially interesting the connection he establishes between the quantity of rubber produced and the estimated supply of guayule shrub. On the basis of a 7 per cent. yield these 20,000 tons of rubber exported in the four years ending June, 1909, would have represented 286,000 tons of guayule shrub. As, however, the yield was in some cases higher, Dr. Lloyd considers 225,000 tons of guayule shrub as representing the quantity disposed of up to June, 1909. The American imports of guayule for each of the years 1910 and 1911 having been double those of 1909, it is evident as much shrub was consumed in their manufacture during the last two years as had been used in the preceding four years.

This difference has to some extent been compensated by the increased rate of yield now being attained, of 12 per cent., as compared with 9 per cent., on which is based the above named estimate of 225,000 tons of guayule shrub as having been consumed within the four years—1905-1909. On the higher basis of 12 per cent. yield, the 10,000 tons imported by the United States in the fiscal year 1910 will have represented about 83,300 tons of shrub used during that period. Assuming that other countries will have continued to take one-fourth of the quantity imported by the United States, there would be:

For four years, 1905-1909, total about..... 225,000 tons
For two years, 1910-1911, total about..... 200,000 "

Estimated consumption of shrub in six years.... 425,000 "

Three questions present themselves for discussion:

1. What proportion does the above-named consumption bear to estimated supply of guayule?
2. What steps are being taken to renew the supply?
3. What improved methods are likely to increase the yield and consequently reduce the quantity of guayule shrub consumed.

THE SUPPLY OF GUAYULE SHRUB.

According to Endlich's estimate quoted by Dr. Lloyd, the original quantity of guayule shrub represented 375,000 tons; this figure being based on a yield in virgin fields of half a ton per hectare (2.47 acres) from 750,000 hectares, at which the shrub-bearing area in Mexico was estimated. This shrub-bearing area represents 10 per cent. of the 7,500,000 hectares which the general Mexican guayule region was calculated to contain.

Dr. Lloyd allowing for the guayule still remaining on fields which had been gone over, places the original quantity (instead of 375,000 tons) at 500,000 tons; of which it would seem that four-fifths had been used up to the present time.

CULTIVATION OF GUAYULE.

FORESTAL OPERATIONS.

The operations in the cultivation of guayule may be either forestal or cultural, in the narrower sense. Field operations have up to the present been mainly confined to the collection of shrub in the greatest possible quantity, and in the easiest way, for the sake of the immediate monetary return. The small plants left for this reason in many places will, it is remarked, serve to repopulate the areas thus treated. Pulling up the plant by hand has been the method usually employed, while had it been cut or twisted off (as has been done in some cases), the ground would in time display a replenished product.

It is recommended at the first cutting, to take only plants 16 inches or more in height. Five years later there should normally be a new crop of 16-inch plants, which may then be taken. Between 12 and 16 inches the maximum economic efficiency of

*Guayule, a Rubber-Plant of the Chihuahuan Desert. By Francis Ernest Lloyd. 1911.

growth is reached. Fifteen years is regarded as the "rotation period," but it is added, as the growth efficiency of a plant falls after this age, these plants must be removed every fifth year.

With the view of their practical use, Dr. Lloyd has embodied the above and other points into "Suggested Rules of Practice," which deal with the questions of the period of harvesting, reseeding barren ground, and other topics of importance. In closing this branch of the subject, Dr. Lloyd emphasizes the fact that the disregard of these rules of operation, or of other equally or more efficient, will lead to the practical extermination of the plant.

CULTURAL OPERATIONS.

As Dr. Lloyd remarks, while forestal operations are of immediate and great importance for the preservation of the natural supply as long as possible, the ultimate and adequate solution of the production of guayule shrub lies in its successful cultivation. The abundant and ready growth of guayule under irrigation (properly alternated with drought) is an established fact. It remains to be shown, on a larger scale, what may be done to establish the culture of the plant on an economic basis. The great difficulty of the initial work is the question of water, without a proper supply of which it would be useless to attempt cultural operations.

GROWING SEEDLINGS.

Under present conditions it would be necessary to collect seed from the field, which is a costly and uncertain method; this point

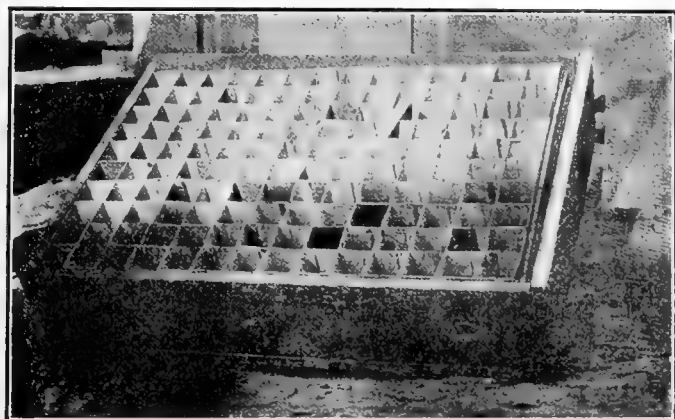


FIG. B. BOX CONTAINING TUBES FOR GERMINATING GUAYULE SEEDS.

being of importance in the event of its being found desirable to raise and transplant seedlings.

With a view to eliminating the risk of loss in transporting seedlings, a tropical principle was adopted. A unit system of wooden trays and paper tubes was devised by Capt. L. C. Andrews, the tubes being four square inches in transverse section and six inches long. A tray 20 x 28 inches inside measure and six inches deep, was equipped with these tubes (Fig. B), the whole being filled with unsifted limestone soil. The tray placed in a "melga" was watered by sub-irrigation, while the surface was shaded at a height of 1.6 inch by a thin cotton cloth supported in a frame. On February 16, 1908 1.5 ounce of seed was sown. The germinations numbered 525, of which 41 were lost, leaving 484 living seedlings. Of the 525 germinations, 104 had taken place by the end of February, 300 more by March 8, a further 100 by March 12, and the balance by March 16. The appearance of these seedlings is shown in Fig. D. When ready for placing in the grove the whole pot is planted; the decay of that receptacle, aided by the fracture, setting the roots free, without any disturbance. These changes will have more or less taken place by the time it is desired to transplant the seedlings.

Seeds germinate more promptly and seedlings grow much more rapidly during the summer months.

IRRIGATION.

Hand-watering of the surfaces would, it is remarked prove laborious and expensive. In sub-irrigated trays, the germination was over twice that in surface-watered trays; sub-irrigation with shade being the most favorable system.

TRANSPLANTING FIELD PLANTS.

Another method of cultivation described by Dr. Lloyd, as having the advantage of speed, is the transplanting of field plants into irrigated ground. From experience it has been found that the best method is to cut back to the top of the tap-root and send the tops to the factory for extraction; the returns from which would go far towards the expense of operations.

PROSPECTS OF GUAYULE.

Dr. Lloyd's conclusions touch upon two questions of importance—first, that up to the present time, the facts have not warranted cultural trials on a scale sufficient to make available a crop of anything but limited experimental size; and, second, that such cultivation may be supplemented *ad libitum*, provided that areas with sufficient water are available, and that care is exercised in harvesting their yield.

In connection with the latter branch of the subject, Dr. Lloyd suggests that the new growths (say, of two years) of plants about 40 inches spread, may with advantage be removed by a cutting instrument, so as to leave the butt undisturbed to shoot out afresh. The branches which have rooted, can then be removed by hand, simply by breaking them away, and replanted. These are usu-

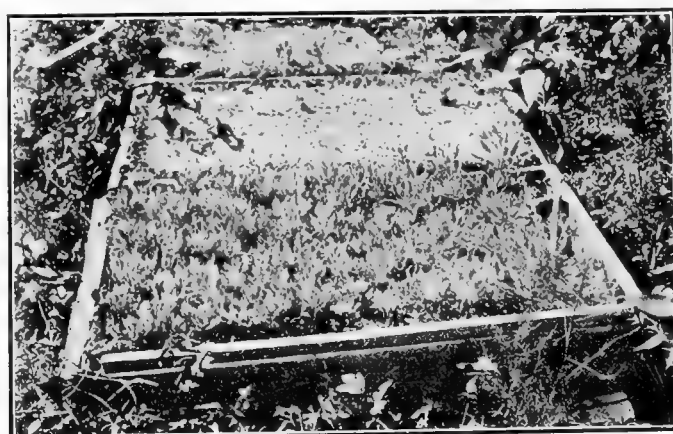


FIG. D. THE SAME BOX CONTAINING SEEDLINGS WELL GROWN.

ally supplied with a strong root which can be pulled up without severe damage.

Dr. Lloyd's treatment of his subject is remarkably practical and detailed, indicating his thorough acquaintance with its various aspects.

ANOTHER PROOF OF RUBBER'S COMMERCIAL POSITION.

It appears that an industrious junk-dealer of Paterson, New Jersey, has been busy for some time past making a collection of worn-out rubber goods. This collection he put in his storehouse with his other treasures. A few days ago thinking that he had rubber enough to take to the reclaiming market, he visited his storehouse with the intention of packing it up and making delivery. To his consternation he discovered that the window had been broken and that while nothing else had been touched in his storehouse his rubber was gone, to the last scrap. Suspicion fell upon a rival junk-dealer, whom he immediately haled before a justice of the peace, who in turn passed the matter along to the grand jury. The larceny of the rubber, together with the immunity enjoyed by the rest of the dealer's collection, shows that among junk, rubber is now in a class by itself. The Paterson dealer should secure proper quarters in a safety deposit institution.

THE OBITUARY RECORD.

JAMES H. STEARNS, treasurer of Parker, Stearns & Co., died on September 9, at the Pine Grove Springs Hotel, Spofford, New Hampshire. He was born in Brattleboro, Vermont, 69 years ago. In addition to his interests in the firm of which he was treasurer, he was president of the Pine Grove Springs Company. He was a member of the Union League Club, Brooklyn; the Veterans' Association of the Twenty-third Regiment, and the Empire State Society of Sons of the American Revolution.

Mr. Stearns is survived by a widow, one son, E. Ward Stearns, who was associated with him in business, and one daughter Miss Edna Stearns.



JAMES H. STEARNS.

The funeral services were held on Tuesday, September 12, in the family's summer home in Spofford, the Reverend Mr. Watson, of the Universalist Church, officiating. There was a very large attendance at the services, not only of the people of Spofford but of friends from Brattleboro, Mr. Stearn's birthplace and from the neighboring towns of Keene, Hinsdale, Westmoreland and Chesterfield, while many of his old friends from Boston, New York and Brooklyn were also present. A large part of those who attended the services, especially the residents of the village where he had spent so many summers, followed the body the entire distance, a mile and a half, from the church to the cemetery.

Mr. Stearns was a large man, quiet in his tastes and ways; not much of a talker, but a very clear and sane thinker. He was naturally friendly, especially towards young men in whose careers he took a deep but unobtrusive interest. Nearly twenty years ago he was warned by physicians that his span of life was to be but brief, but by a temperate out-of-door life, he not only greatly prolonged his days but was most comfortable and happy in so doing.

The trio who made up the firm of Parker, Stearns & Sutton were of a type that is unusual among American business men. They were exceedingly well adapted for co-operative effort—one clear-headed, unemotional, with an intuitive knowledge of just how and where to find markets for almost any products, another a thoroughly capable and successful factory manager, and the third an impulsive, brilliant inventor. Their beginnings were small, but as the business grew and became profitable they developed their unusualness. Instead of allowing the business to absorb the whole of their lives and be master, they secured competent assistants, and selecting a section in New Hampshire bought all of the land that enclosed a beautiful lake. There they built summer homes, and lived in the open for four or five and often six months of the year. Messrs. Parker and Sutton were content with elegant villas surrounded with fine grounds, with

motor boats, horses and automobiles. Mr. Stearns, however, enamored with the lake and mountain scenery, wanted the whole world to share it with him, and erected a great summer hotel which his many New York friends were glad to flee to during the hot months. With it all the three took infinite comfort, and no doubt added to their years notably by their wise living. Mr. Sutton passed away September 23, 1908. Henry Burton, their chief assistant, adviser and friend died May 10, 1910, and now another has gone. To the remaining partner bereft of his life-long associates and friends, lonely and stricken, the deep sympathy of the whole industry is extended.

JAMES F. CUSACK.

James F. Cusack, superintendent of the Plymouth Rubber Company, Canton, Mass., died suddenly on September 4 while visiting his father at East Manchester, New Hampshire. He was born 38 years ago in Manchester, New Hampshire, but had lived during the last 11 years in Stoughton, Massachusetts.

CHARLES E. YOUNG.

Charles E. Young, who for the last 15 years was manager of the rubber department of the jobbing house of L. P. Ross, Rochester, died September 12, after a protracted illness resulting from ptomaine poisoning. Mr. Young was born in Watertown, N. Y., November 20, 1857. He was not only widely known in rubber footwear circles in the Middle States, but was very active in many enterprises outside of his business—particularly in church affairs in Rochester, being at the time of his death superintendent of the First Baptist Church Sunday School. He was a man of unusual ability and of fine character.

EXPORTS OF RUBBER GOODS TRIPLED IN TEN YEARS.

BY comparing the figures shown in the September issue of THE INDIA RUBBER WORLD [page 504], it will be seen that within the last ten years the exports of belting, packing and hose were more than tripled, those of rubber boots and shoes more than doubled and those of all other rubber manufactures almost quadrupled, the aggregate results being:

1901-02	\$3,462,402
1910-11	10,947,248

That the annual totals show a steady increase year by year affords convincing proof that this progress is not caused by "dumping" American goods in foreign markets, with the consequent reaction, but indicates a growing appreciation in all parts of the world of those intrinsic merits upon which American rubber manufacturers have built up and held their trade.

According to the latest details available (those for 1909-10), there had been during that period a marked development of business with the Australian markets, as compared with 1908-09, shown by annexed figures:

AMERICAN EXPORTS OF RUBBER MANUFACTURES TO AUSTRALIA AND NEW ZEALAND.

	1908-09.	1909-10.
Belting, hose and packing.....	\$98,171	\$148,687
Boots and shoes.....	173,450	205,567
All other rubber goods.....	120,357	168,395
Total	\$391,978	\$522,649

One important feature of the Australian trade being that the seasons are inverted as compared with this country, this fact would enable manufacturers to follow up their campaigns here, with others at the Antipodes. Of course preparations for the latter would have to be made ahead, but the prospect of thus getting extra trade just when it is most needed, should encourage American manufacturers to try for their share of business with the Australian markets.

Rubber Testing at Gross-Lichterfelde.

WHILE in German technical circles there no longer exists any doubt with regard to the value of the mechanical testing of rubber, there seems to be a conflict of opinion as to the manner in which such tests should be carried out. To this circumstance has been attributed the lack of their general recognition and application.

Much attention has been paid to the subject during the last few years.

WORK OF 1909.

The testing of india-rubber and insulating materials electrically, constructionally and thermally, was taken up at the Testing Bureau of Gross-Lichterfelde, Germany, during the working year 1909. Appliances were procured for the washing and vulcanizing of crude rubber and for compounding, with the aid of which the bureau was enabled to make a practical study of the process of vulcanization and the influence of the chemical and physical processes therein employed.

For conducting tests of the strength of rubber, L. Schopper's (Leipzig) perfected testing machine, as well as a Martens-Schopper durability testing machine, were installed, the two first named being in regular operation.

The German cable factories had combined and in order to control the supply of insulated wire, had formulated conditions as to the quality of the rubber employed. The methods to be used in the analyses were drawn up by the chemists of the different factories interested, in co-operation with the Bureau.

In very many instances tests were made to determine the resistance of insulating substances to the chemical action of water, acids, alkalies, etc. This work is being continued during the current working year and methodical tests made of various insulating substances.

The elaboration of processes for the analysis of rubber, in compliance with the requests of the United Manufacturers of Insulated Wire, was another important phase of the work conducted by the Bureau. It was at once evident that the end desired would soonest be attained by a process for determining the amount of pure rubber actually present in rubber compounds, and for this purpose the method described by Axelrod, based on the precipitation of rubber as tetra bromide, seemed best adapted. A thorough test of the process, however, showed, in the original form, several sources of error, which reflected doubt on its reliability.

For determining the percentage of sulphur, a process had been elaborated by J. Rothe; in many instances a process devised by Hinrichsen, based on the electrolytic oxidization of the organic substances in the presence of nitric acid, was also used.

COMPARISON OF TESTING METHODS.

In advance of the official report for 1910, the fourth number of the 1911 "Communications" of the Bureau contains an interesting article by Dr. K. Memmler and Herr A. Schob, both of that institution, dealing with "The General Character of the Mechanical Testing of Soft Rubber," to some extent reviewing what has been done in the past. This paper supplements that read at Copenhagen in 1909 by the experts in question and forms an appropriate starting point for new investigations on the subject.

As an initial proposition, it is stated that two forms of mechanical testing call for discussion:

(a) A simple test of quality, such as is employed for metals, cement, etc. This test will of necessity be confined to determining the strength and elastic properties of a *rubber compound*, apart from the nature of the requirements, to which articles made from such compound (hose, discs, rings, buffers, molded pieces, etc.), may be liable in practice.

(b) A test in which either finished articles or samples obtained from them will be subjected to the same requirements to which the articles will subsequently be exposed in practice.

The latter method of testing, while possibly the more desirable from a practical standpoint, will be found upon consideration to be attended by manifold difficulties. As it is remarked, the extensive variety of rubber manufactures renders difficult the establishment of uniform bases for tests. Uniformity of testing methods cannot, however, be dispensed with, if it is desired to compare results obtained at different points. It is added, that from the experience acquired with other materials, the attainment of the desired object is more probable by the use of the first-named plan, a simple test of quality. Care must, however, be taken to establish this test in such a way that it may (without taking up too much time, or using an excessive quantity of material) be applied as a uniform standard to all rubber products. It must likewise not involve complicated testing arrangements.

QUALITY TESTS FOR RUBBER.

It is then deduced, that with systematic procedure it ought not to be difficult to collect detailed results as to the exact strength (resistance to fracture, changes of form, elastic reaction, etc.) of any description of rubber, with a view to its adaptability to a given purpose. Manufacturers and consumers, it is urged, will soon become accustomed to require, for instance, of a rubber for automobile tires, certain recognized fixed degrees of strength or other properties. An automobile tire can, it is true, be for experimental purposes attached to a shaft with a certain burden and a fixed number of revolutions, rotating upon a surface representing a given paving material.* But, it is asked, who will stand the expense involved by such a test of the comparative loss in weight of tires, when usually only a small order is involved?

The other manifold products of rubber, it is remarked, are in the same position as automatic tires, although less affected by considerations of expense than in the latter case where, if tests are to be made with direct reference to prospective uses, there will necessarily be a number of special trials.

WHY NOT CHEMICAL TESTS?

It is further remarked that an opinion prevails that a test for quality alone can be furnished by chemical analysis of rubber compounds. Against this contention it is, however, pointed out that such chemical analysis has not yet reached a position where generally recognized methods can be spoken of. Moreover, even with the hoped-for perfection of analytical processes, it will be difficult to deduce in all cases from its chemical composition, reliable conclusions as to the elastic and mechanical qualities of the rubber. In the same way the results of the chemical analysis of iron afford but limited guidance as to its mechanical properties.

With a view to the most exhaustive possible determination of the quality of rubber, efforts are recommended for the reciprocal expansion of the scope of both chemical analysis and mechanical tests of strength.

From these various considerations it is deduced that nothing remains but to try to build up mechanical rubber testing in the sense explained, on the basis of a simple test for quality. The chief question is then, whether the quality of the rubber is to be judged according to the samples cut out from the manifold products of the article, or according to types drawn from a compound already prepared.

With regard to this question, it is pointed out that tests on a large scale will be necessary to determine in what degree the strength of a rubber compound, or of various sized vulcanized

*See "Accurate Tests of Tire Efficiency," INDIA RUBBER WORLD, August, 1911, p. 443.

samples, is affected by the temperature or duration of the vulcanizing process.

FORM OF SAMPLES

While the broad question of testing samples of rubber compounds or of finished products is thus dealt with in the interesting paper under review, the form of the samples to be tested is also treated in much detail, being further elucidated by tabulated results of tests recently made by the Bureau.

In dealing with the general question of testing rings or slabs it is stated that while ring tests are possibly not adapted for all cases, as long as there is nothing better, it seems advisable to continue experiments in that direction, and thus to collect experiences on the subject of rubber testing.

The recent tests of the Bureau were largely directed to the determination of various points affecting ring types. From the results obtained it would seem that the stamping out of sample rings is preferable to cutting them out, as it ensures uniformity of size, being also more economical. In this connection the adoption of a standard form of ring is urged, of uniform width, thickness and diameter, the results of tests being varied by the dimensions of the samples tested.

In conclusion, the authors of the paper remark:

"It will be a task deserving of thanks, if the Committee on Rubber Testing, recently appointed by the German Association for Testing Technical Materials, will devote full attention to the questions here discussed; particularly as to the dimensions of samples. That Committee will be all the more in a position to do so, as its composition affords it the facility of supplementing technical experiments by the practical tests of its members in the rubber industry."

Meanwhile, it is of interest to note that the Gross-Lichterfelde Bureau contemplates pursuing its tests and investigations upon the subject of rubber testing.

Arrangements have also been perfected for the keeping of rubber samples under various conditions, in moist and dry places, at normal and other temperatures, in darkness and light, with a view to ascertain the changes to which the samples of different compoundings and different degrees of vulcanization are subject under the above-mentioned conditions.

DIRIGIBLES 77 YEARS AGO.

WHILE it is a fact that the dirigible never before occupied so much space in public print as it does at the present time, still as far back as 1834 quite a little was published about dirigible balloons and their possibilities. In that year the French aeronauts, Messrs. Lenon and Edam, of Paris, published a dazzling prospectus of what they were about to achieve in their dirigible *L'Aigle*, which they advertised would start from the Champ de Mars about the middle of August and would carry them, their two intrepid wives and several other selected passengers on a trip to London some 290 odd miles away.

This dirigible was actually constructed according to the prospectus and was a thoroughly respectable affair—in appearance. It was 130 feet long, nearly 49 feet in diameter, and shaped like a fish; in other words, not very unlike in its proportions to the modern dirigible. It was inflated with hydrogen and had inside of the big balloon a second much smaller envelop full of air which, with the assistance of pumps, was compressed or rarefied to assist descent or ascent as the need might arise. At the ends of the balloon were wheels furnished with small wings for steering. The propelling force was entirely hand machinery—which certainly would discourage any aviator of the present time. Beneath the balloon was a wicker car with accommodations for 10 people.

At the time advertised the dirigible was conveyed to the Champ de Mars and put in readiness for flight, but for some reason or other refused to fly. A great crowd had gathered and in order not to have its holiday spoiled, after giving the dirigible sufficient time to make good smashed it into small pieces. Such was the fate of the first ambitious dirigible mentioned in history.

EIGHTH INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY.

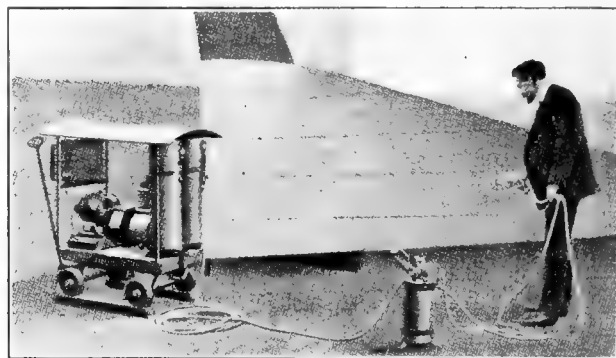
THE secretary of the International Congress of Applied Chemistry, Bernhard C. Hesse, No. 25 Broad street, New York, is sending out to authors who may wish to take part in that congress a set of preliminary rules which will regulate the submission of papers for consideration. The primary object in sending out these rules at the present time is to invite criticism and suggestions before the rules are formulated in their final form. Suggestions should be forwarded to him before December first next. The principal points covered in these rules are as follows:

All papers to be submitted to the congress should be in the hands of the secretary by June 30, 1912. They should not be so long that the time consumed in reading them, or at least in presenting their substance will exceed ten minutes. All papers should be in duplicate and legibly written, preferably typewritten and written only on one side of the sheet. Each paper must be accompanied by an abstract of its contents, and contributions must be absolutely original, and must not deal with historical matter any further than is necessary for the proper presentation of the particular topic. No paper accepted by the congress and printed in its report can be subsequently published elsewhere without giving full credit to this congress. No paper will be considered that is conspicuously polemical or contains advertising or matter of a personal character.

A circular giving all the rules in detail may be had on application to the secretary.

SPREADING WITH AN ATOMIZER.

SAYS *Popular Mechanics*, "Aeroplanes are now being made in such large numbers in France that time-saving methods are being adopted in their production. The way in which the fabric used for the covering of wings and rudders is coated with rubber



APPARATUS FOR SPRAYING AEROPLANE WINGS WITH A RUBBER SOLUTION.

to make it waterproof and give it better sustaining qualities in the air, as employed in the Deperdussin works in Paris, is shown in the illustration. Having been stitched together, the widths of muslin, cut to the desired shape, are stretched on frames and sprayed with a rubber solution. The spraying device is held in the hand of the operator and moved about in front of the cloth. One of the rubber tubes leading from it conveys solution from the portable tank on the floor and the other tube leads to the tanks of compressed air on the hand truck at the left. The supply of compressed air in the tanks is maintained by a small air-compressor driven by a small electric motor."

Just how this saves time is a question. It would seem as if a spreader or a calender would accomplish much more. Then too, the query arises as to vulcanization. Do they spray the rubberized aeroplane with chloride of sulphur or run it into a hangar fitted up as a dry heater?

The German Rubber Industry.

At the recent International Rubber Exposition, a series of graphic tables were displayed at the stand of the "Gummi-Zeitung." These included:

I. Production of Crude Rubber throughout the World, 1890-1910.

II. Germany's Imports, Exports and Consumption of Crude Rubber, 1890-1911.

III. Details of Germany's Crude Rubber Trade.

IV. Germany's Exports of Rubber Goods, 1890-1910.

V. Details of Germany's Exports of Rubber Goods.

VIII. Exports of Crude Rubber from German colonies

IX. Price Fluctuations of Crude Rubber.

X. Development of Factories and Hands.

For the benefit of those not visiting the exposition, the principal tables have been reproduced in pamphlet form, with graphic

a consuming rubber market, is shown by a comparison of the results for 1890 and 1910, as given in Table II.

German Crude Rubber. German Crude Rubber.

	Imports.	Exports.
1890.....	3,889 tons	858 tons
1910.....	33,316 "	10,136 "

Table IV shows the growth of the German export trade in rubber manufactures during the twenty-year period. This last table, illustrating the German exports of rubber manufactures, is in many respects the most interesting; as showing a gradual increase from \$6,155,250 in 1890 to \$16,713,500 in 1910. Figures quoted indicate more than a five-fold increase in the



GERMANY'S IMPORTS OF CRUDE RUBBER (TABLE II)

illustrations. Of these the most important are reproduced below

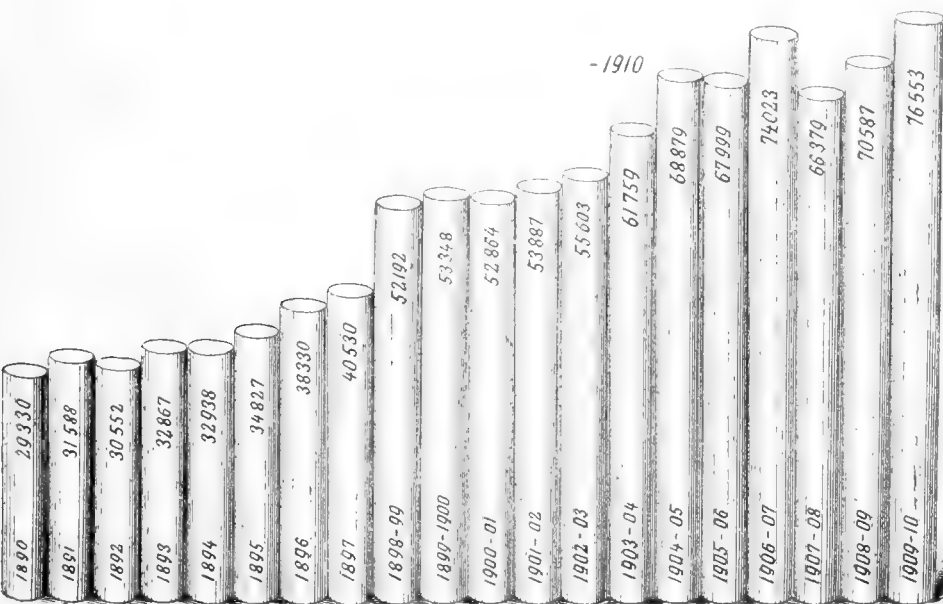
Table I shows from 1890 to 1910 the world's production of crude rubber, while table II shows in three divisions: (a) the portion which went to Germany, (b) the portion re-exported, and (c) the difference between (a) and (b), which represents the German consumption of crude rubber.

It is thus seen that a large proportion of the increased German receipts of crude rubber has been absorbed by the augmented domestic requirements of that country.

That Germany has gained ground as a distributing, as well as

number of hands, as compared with 1882, the total having risen from 7,323 to 40,000.

With reference to Table VIII., the descriptive pamphlet states that experts from the German colonies fell off in 1908 owing to the character of the harvesting exhausting the trees. This plan has now been abandoned, in favor of a system for conserving the trees and planting new ones. Although the new plantations are not yet very productive, an increase of nearly 30 per cent. as compared with previous year was shown for 1909.



WORLD'S PRODUCTION OF CRUDE RUBBER. (TABLE I.)



GERMANY'S EXPORTS OF RUBBER GOODS (TABLE IV.)

TABLE I.—WORLD'S CRUDE RUBBER PRODUCTION.

	Tons.
1890.....	29,330
1891.....	31,588
1892.....	30,552
1893.....	32,867
1894.....	32,938
1895.....	34,827
1896.....	38,330
1897.....	40,530
1898-9.....	52,192
1899-1900.....	53,348
1900-01.....	52,864
1901-02.....	53,887
1902-03.....	55,603
1903-04.....	61,759
1904-05.....	68,879
1905-06.....	67,999
1906-07.....	74,023
1907-08.....	66,379
1908-09.....	70,587
1909-10.....	76,553

TABLE II.—GERMAN CRUDE RUBBER STATISTICS.

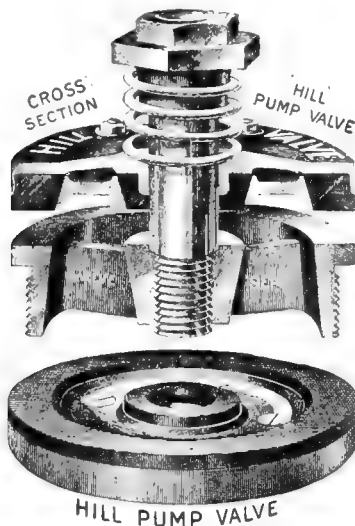
	German Imports.		German Exports.		German Consumption.	
	Double centners.	Tons.	Double centners.	Tons.	Double centners.	Tons.
1890.....	38,893	3,889	8,578	858	30,315	3,031
1893.....	51,993	5,199	11,621	1,162	40,372	4,037
1896.....	82,804	8,280	19,078	1,908	63,726	6,373
1899.....	137,037	13,704	54,088	5,409	82,949	8,295
1902.....	150,288	15,029	62,360	6,236	87,928	8,793
1905.....	213,930	21,393	78,506	7,850	135,424	13,542
1908.....	249,885	24,980	68,605	6,860	181,280	18,128
1910.....	333,149	33,316	101,357	10,136	231,792	23,179

TABLE IV.—GERMAN EXPORTS OF RUBBER MANUFACTURES.

	Marks.	Dollars.
1890.....	24,621,000	6,155,250
1892.....	21,822,000	5,455,500
1894.....	19,441,000	4,860,250
1896.....	26,134,000	6,503,500
1898.....	45,136,000	11,284,000
1900.....	43,081,000	10,770,250
1902.....	37,756,000	9,439,000
1904.....	52,948,000	13,237,000
1906.....	56,685,000	14,171,200
1908.....	58,178,000	14,544,500
1910.....	66,854,000	16,713,500

THE HILL PUMP VALVE.

The distinctive features of the Hill pump valve are brought out very well by the accompanying illustration. This valve is made with a bronze back into which rubber, metallic or composition discs are inserted with a view to meeting all pump



valve requirements, such as boiler feed, cold water, hydraulic, or oil. The discs are renewable and are held in place by a binder ring. These discs, supported and strengthened by the bronze body, form a perfect seal on the outer and inner circle of the seat so that no matter which way the valve may rotate it cannot ride on the bridges, thus preventing slipping and the trouble of constantly replacing the valves. [The Hill Pump Valve Company, Chicago, Illinois.]

RUBBER AND BREAD MAKING.

A. D. THORNTON, superintendent of the Canadian Consolidated Rubber Co., Limited, once so plainly explained the "change" that vulcanization effects in rubber that it would be an excellent idea for rubber men to memorize his illustration for use when they are obliged to talk rubber to non-technical investigators. He said: "If you take flour and mix it with cold water and add a little yeast you have a mixture of flour, water and yeast, nothing else, but, if you place the mixture in a hot oven for a certain length of time you will produce bread, which is neither flour, water nor yeast but a chemical combination of the three. The

first was a mechanical mixture but with the aid of heat you produce a chemical combination of the three, and the chemist has not yet been found who can return bread to flour, water and yeast.

"Take another combination, take a quantity of iron filings and sulphur; mix them together and you have a mechanical mixture of iron and sulphur, but if you place that mixture where there is sufficient heat the sulphur melts and combines with the iron and produces a new material which is neither iron nor sulphur, but a chemical combination called sulphide of iron.

"So it is with rubber; we take a certain amount of crude gum and add sulphur. We place this mixture of sulphur and rubber in a heater; when the temperature rises to a certain point the sulphur melts and becomes volatile, and at once begins to combine with the rubber, and after a certain length of time we have a new product—rubber such as the general public knows. It is elastic now, whereas before it was like putty, and although numerous chemists are continually at work trying to find a means of restoring vulcanized rubber to its unvulcanized state, no one as yet has been able to do it.

A MACKINTOSH WITH KNEE EXTENSIONS.



CAP WITH CURTAIN.

that can be let down around the back of the head, protecting

The motorcyclist can now enjoy his machine regardless of weather, for a storm coat has been devised which has extensions which when not needed are buttoned up inside the coat, but when needed can be let down and drawn down over the knee and held there by a strap. The accompanying illustration shows the coat with one of these knee extensions dropped down ready for use and the other buttoned up inside the coat.

From the same English source comes a leather cap with a rubberized fold or curtain



MACKINTOSH COAT WITH KNEE COVERS.

the ears and the neck. (Dunlop Rubber Co., Ltd., Birmingham, England.)

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED AUGUST 1, 1911.

- N**O. 999,197. Spring wheel. Hans C. Bergerud, Fergus Falls, Mass.
 999,302. Pneumatic tire. Mark A. Dees, Pascagoula, Miss.
 999,358. Reinforced resilient heel for boots and shoes. Arthur Ashley, Melbourne, Victoria, Australia.
 999,382. Boot-holder. Axel Lundgren, Chicago, Ill.
 999,384. Antislipping device for vehicle wheels. Thomas Charles Martin, Cleveland, Ohio, assignor to Barrell Holding and Manufacturing Co.—a corporation of Maine.
 999,402. Inflated tire. Amos J. Roussey, Fort Wayne, Ind., assignor of one-third to Walter F. McLallen, Columbia City, Ind.
 999,506. Air-tight valve for pneumatic tires. Morris Levran, New York.
 999,511. Wheel-tire. Joshua D. Marvil, Laurel, Del.
 999,526. Base-ball. Benjamin F. Shibe, Bala, Pa.
 999,607. Wheel-hub for automobiles and similar vehicles. Albert P. Stocker, Struthers, Ohio.
 999,609. Cushion attachment for wheels. Roy Ulrich, Overton, Neb.

Trade Marks.

- 55,918. Elwell Rubber Mfg. Co., Trenton, N. J., and Boston, Mass. The words *Panther Tread*. For rubber heels.
 56,860. John C. Milne, New York. The word *Milnart*. For rubberized waterproofed fabrics.

ISSUED AUGUST 8, 1911.

- 999,760. Tire-shield. James W. Downes, Spokane, Wash.
 999,803. Non-refillable bottle. Samuel B. Kull, New York.
 999,810. Tire. David Lippy, Mansfield, Ohio.
 999,819. Process of forming articles from waste rubber. John Markus, Manchester, England.
 999,960. Resilient wheel. Victor E. Clark, Grand Rapids, Mich.
 1,000,000. Vehicle tire. Francis H. Holton, Akron, Ohio.
 1,000,069. Pneumatic tire. Charles E. Browler, Memphis, Tenn.
 1,000,110. Detachable rubber heel. Francis A. Nolan, St. Paul, Minn.
 1,000,165. Vehicle tire. John B. Fischer, Chicago, Ill.
 1,000,168. Plug-inserting device. Joseph Glanz, Hartford, Conn.
 1,000,215. Elastic horseshoe. Farley D. Veale, Washington, D. C.
 1,000,297. Shield for icemen and others. Charles G. Sagerstrom, Chicago, Ill.

Trade Marks.

- 57,225. Edward C. Griffith, New York. The word *Independent*. For rubber automobile tires.
 57,311. Goodyear Rubber Co., San Francisco, Cal. The word *Rhino*. For rubber hose.
 57,333. The B. F. Goodrich Co., Akron, Ohio. The word *Maxecon*. For belting and tires.

ISSUED AUGUST 15, 1911.

- 1,000,424. Separable demountable rim. George H. McClatchy, Philadelphia, Pa.
 1,000,508. Tire-holder. Frank Sellers Garrett, assignor to himself and Henry Keppele Miller—all of Wilmington, Del.
 1,000,524. Tire-plug. Gustav A. E. Kaul, Hackensack, N. J.
 1,000,581. Protector for drinking glasses, etc. Robert Clarke, Brooklyn, N. Y.
 1,000,662. Tire-grip. Andrew F. Bergin, Howell, Mich.
 1,000,781. Manufacture of flexible material from india-rubber and the like. Arthur Thomas Collier, St. Albans, England.
 1,000,894. Detachable heel. Andrew W. Carlson, Spokane, Wash.

Trade Marks.

- 53,458. Standard Asphalt & Rubber Co., Jersey City, N. J. The word *Sarcolithic*. For mineral rubber pavements.
 56,051. Louis Burger, New York. The word *Kensington*. For garters and armbands.

ISSUED AUGUST 22, 1911.

- 1,001,151. Rubber-stamp aligner. Orlando E. Kellum, assignor of one-half to L. P. Sargent—both of Los Angeles, Cal.
 1,001,208. Fire-hose reel. Clarence E. Mercer, Denver, Colo.
 1,001,237. Vehicle tire. Wolsey R. Barbour, Terre Haute, Ind.
 1,001,384. Tire. John W. Burgess and George F. Burgess, Brookfield, Mo.
 1,001,492. Armored pneumatic tire. Charles F. Williams, Atlanta, Ga., assignor to James T. Andrew, Montgomery, Ala.
 1,001,513. Resilient wheel. Pierre Decauville, Paris, France.
 1,001,518. Tire protector. Mathew J. Frambach and Aldon R. Corrington, assignors of one-half to G. E. Knaack, Hartley, Iowa.

Design.

- 41,698. Golf ball. Charles W. Royce, Montclair, N. J.

Trade Mark.

- 55,096. Edward Sander, New York. The word *Semloh*. For rubber syringes.

ISSUED AUGUST 29, 1911.

- 1,009,621. Tank-valve ball. Louis A. Cornelius, Grand Rapids, Mich.
 1,001,623. Emergency tire. Charles M. Culp, South Bend, Ind.
 1,001,632. Tire-holder. Frank Sellers Garrett, assignor to himself and Henry Keppele Miller—both of Wilmington, Del.
 1,001,663. Vehicle tire. Arthur H. Marks, Akron, Ohio.
 1,001,686. Resilient wheel. Giuseppe Restucci, assignor of one-half to Thomas P. Pugliatti—both of Naples, Italy.
 1,001,693. Packing. Walter E. Sanders, Cleveland, Ohio.
 1,001,714. Resilient wheel. Enos A. Wall, Salt Lake City, Utah.
 1,001,715. Spring wheel. Enos A. Wall, Salt Lake City, Utah.
 1,001,734. Nose-guard for spectacles. George H. Day, Southbridge, Mass., assignor to American Optical Co., a corporation of Massachusetts.
 1,001,753. Wheel structure. Manning Goldsmith, Decatur, Ga.
 1,001,802. Demountable rim. John Baker, Pasadena, Cal.
 1,001,842. Hose. Edwin T. Greenfield, Kiamasha, N. Y.
 1,001,886. Demountable rim. Elwood C. Phillips, Chicago, Ill., assignor to Phillips Demountable Rim Co., Indianapolis, Ind.
 1,001,891. Security-bolt for vehicle wheel tires. John David Rowland, Birmingham, England.
 1,001,892. Balloon-envelope material. Julius Rund, Frankfort-on-the-Main, Germany.
 1,001,940. Self-fitting petticoat. William Epstein and Samuel Epstein, New York.
 1,002,040. Shock-absorber. John T. Costello, Pittsburgh, Pa.
 1,002,046. Elastic tire. Giles S. Doty and John D. Snow, Philadelphia, Pa., assignors to D. & S. Airless Tire Co., a corporation of Delaware.

Design.

- 41,736. Matting. Clifford H. Oakley, Trenton, N. J.

Trade Mark.

- 57,174. Nashawannuck, Manufacturing Co., Easthampton, Mass. The word *Twillette*. For elastic webbing.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1910.

*Denotes Patents for American Inventions.

(ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 2, 1911.)

- 8,457 (1910). Tire attachment to rims. W. A. P. Werner, London.
 8,463 (1910). Seating for rubber wheel-cushion. J. Gorst, Chester, Eng.
 8,491 (1910). Reinforcement for pneumatic tires. A. E. Henderson, Ballymeanoch, Lochgilphead, Scotland.
 8,591 (1910). Plastic composition of rubber and cork. J. C. Whitley, Halifax, Yorkshire.
 *8,703 (1910). Tires and inflation of same. H. P. Maxim, Hartford, Conn.
 8,710 (1910). Improvements in inflated balls for tires. G. Madden, Islington, London.
 *8,790 (1910). Rubber casing sleeve for non-refillable bottles. J. H. Quinn, Stoyestown, Pa.
 8,818 (1910). Rubber foundation for sticking plaster. H. Von Gimborn & Zifferer, Vienna, Austria.
 8,855 (1910). Rubber sheaths for typewriter fingers. J. C. Fell, London.
 8,871 (1910). Ring for condiment receptacles. A. C. Towers, Dalston Junction, London.
 8,993 (1910). Reinforced air tubes for tires. E. Overy, Canning Town, and W. F. Gould, Forest Gate—both in London.

(ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 10, 1911.)

- 9,190 (1910). Use of rubber in floor coverings. H. Linnekogel, Stuttgart, Germany.
 9,205 (1910). Rubber buffers in centrifugal separators. H. J. Haddan, London.
 9,219 (1910). Process for manufacturing synthetic rubber. W. R. Hodgkinson, Blackheath, England.
 9,393 (1910). Tire inflating valves. A. V. Park, South Melbourne, Australia.
 *9,416 (1910). Tire tread bands. J. Corwin, Chicago, Ill.
 9,419 (1910). Cushioning devices for vehicle wheels. E. Favary, London.
 9,430 (1910). Molding wheel tires. A. C. Squires, Akron, Ohio.
 *9,431 (1910). Elastic straps for corsets. M. C. Ninde, Fort Wayne, Ind.
 9,439 (1910). Use of rubber in golf club heads. F. Murray, Murrayfield, Edinburgh, Scotland.
 9,505 (1910). Heel and sole protectors. J. E. M. Cooke, of Markham & Roberts, Stafford.
 9,579 (1910). Elastic substance like rubber. W. Van der Heyden, Amsterdam, and J. Jurgens, Nymegen, Holland.
 9,588 (1910). Extraction of rosin from crude rubber. W. Elsner and O. Meyer, both of Hanover, Germany.
 9,609 (1910). Elastic or resilient masses. W. Plinatus, Paris, France.
 9,614 (1910). Improvements in tire treads. W. E. Carnont, Richmond, Surrey.
 9,616 (1910). Elastic or resilient masses. W. Plinatus, Paris, France.

- 9,676 (1910). Rubber compositions containing cellulose. J. B. Scammell, London.
- 9,688 (1910). Solvent for impurities in rubber. J. B. Gell, Edinam, Paris, France.
- ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 16, 1911.
- 9,777 (1910). Lead bands for tires. T. Meltor, Naimal, London.
- 9,788 (1910). Rubber tire expanded in mold. W. L. Chittord, Barnes, London.
- 9,789 (1910). Machines for manufacturing tire covers. P. Rausillon, Suresne, Seine, France.
- 9,797 (1910). Tension spoke wheel fitted with tam tires. A. J. Bowles and Dunlop Pneumatic Tyre Co., both in Coventry.
- 9,798 (1910). Flexible apes for spraying machines. B. Clough, Ambley, Leeds, and J. Edmondson, Pudsey, near Leeds.
- 9,830 (1910). Tire covers. W. J. Potter, Elysa, Woodham, Essex, Essex, England.
- 9,842 (1910). Tire inflating valves. "Captain" Motor Wheel Co., Ltd. S. A. Curry, Bristol.
- 9,844 (1910). Detachable rim attachments to wheels. S. A. Curry and "Captain" Motor Wheel Co., Bristol.
- 9,910 (1910). Tire attachments to rims. A. Whiteway and C. Macintosh & Co., Manchester, England.
- 9,911 (1910). Tire attachments to rims. J. A. Harrison and G. Hodder, Birmingham.
- 9,918 (1910). Absorption of change in form by milky juice of guayule. K. L. V. Zimmer, Hamburg, Germany.
- 9,961 (1910). Tire attachments to rims. J. A. Harrison and G. H. Mann, Birmingham.
- 9,994 (1910). Rubber tire tread belts for motor vehicles. T. Appleby, Aston, Birmingham.
- 9,997 (1910). Block covers and tire attachments to rims. J. H. Bell, London.
- 10,000 (1910). Tread band for rubber tires. J. B. Kempshall, Westington, D. C.
- 10,044 (1910). Apparatus for building and repairing tires. R. Froberg, Berlin.
- 10,047 (1910). Tire covers with internal layers. Soc. Deborcet, Paris, France.
- 10,056 (1910). Regulating rubber latex. R. Rankin, Elmhurst, Hamilton, Scotland.
- 10,082 (1910). Rubber cushioning heels for shoecraft makers. British Loose Leaf Manufacturers, London.
- 10,193 (1910). Clamps for racket of pneumatic tires. W. Ullrich, Dinseldorf, Germany.

ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 23, 1911.

- 10,309 (1910). Air tubes and chambers. W. J. Potter, Elysa, Woodham, Essex, Essex.
- 10,361 (1910). Regulating auto-oxidation of rubber. W. Ostwald, Leipzig, Germany.
- 10,447 (1910). Molded covering for rubber tires. R. Shelley, Birmingham, and D. E. Brown, Abbots Langley, Hertfordshire.
- 10,453 (1910). Manufacture of rubber balloons. A. Lazzella and M. Ganz, Brussels.
- 10,475 (1910). Rubber rings for milk bottles. P. Mees, Antwerp, Belgium, and Banque Centrale de Fonds Publics, Brussels.
- 10,565 (1910). Rubber cushion heels. G. Looms, Market Harborough.
- 10,615 (1910). Protective bands for treads of rubber tires. A. Kingston, Wellington, New Zealand.
- 10,655 (1910). Leather jackets for pneumatic tires. C. J. Walker, North Fitzroy, near Melbourne, Australia.
- 10,657 (1910). Repairing of rubber tires. J. G. A. Kitchen, Scotthoth, Lancashire, and T. H. Storey, Ambleside, Westmoreland.
- 10,674 (1910). Rubber strips in blotting pads. J. Stockinger, Holzhauser, Post Ruhstorf a/Rott, Germany.
- 10,720 (1910). Tire covers with continuous internal layers. T. C. Pett and A. A. Donald, Bull Ring, and E. J. Solomon, Camden, both in Birmingham.
- 10,851 (1910). Tire covers with continuous internal layers. J. Webster, Paradise, Foleshill, Coventry.
- 10,852 (1910). Rubber covered base for ladders. G. E. Harper, Birkhead.
- *10,922 (1910). Impregnated bottle stoppers. J. H. Ketcheson, St. Louis, Mo.
- 10,927 (1910). Intermediate rubber band in air tubes. H. W. Lake, London, England.

ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 30, 1911.

- 10,945. Plastic washers for rotary pumps. J. Raelot and C. Endeslin, Boulevard National, St. Maur des Fossés, Seine, France.
- 10,984. Reinforced air tubes for tires. B. B. Hill, Princess May Road, Stoke Newington, London, England.
- 10,992. Tire attachments to rims. G. Standen, Watersfield, Pulborough, Sussex, and F. A. Jackson, Bishop Frome School, Worcester.
- 11,034. Horse-shoes with dovetailed rubber insertions. E. L. Haydon, Norfolk Square Hotel, London Street, Paddington, London.
- 11,126. Clips for tire inflators. E. R. Carroll, Mountain View Road, Ranelagh, Dublin.
- 11,136. Tire covers with continuous internal layers. R. Rohm, Cellerstrasse, Braunschweig, Germany.
- 11,174. Air tubes and chambers; tire covers. J. A. Legh, Rydal Vicarge, Ambleside, Westmoreland.
- 11,229. Manufacture of rubber dress shields. E. C. R. Marks, Lincoln's Inn Fields, London, England.
- 11,235. Belts with attached pieces of elastic. W. C. Ellis, 18 Aldermanbury, London, England.
- 11,255. Rubber attachment for bandages. J. E. Arnold, West Smithfield, London, England.

- 11,309. Elastic tire bodies and cores. H. C. T'Anson, Cleveland Terrace, Darlington, Durham.
- 11,329. Rubber tires supported by springs. G. Lowthian, Parliament Street, Westminster.
- 11,340. Tire attachment to rims. F. Frowein and L. Brinck, 5 Rue des Camions, Brussels.
- 11,369. Rubber covered collar stiffeners. J. C. Round, "Purbrook," Crescent Wood Road, Sydenham Hill, and W. F. Freeman, 9 Southampton Street, High Holborn—both in London, England.
- 11,385. Vulcanized ferrule for electric lamps. W. Crossley, Lumbrook, Northowram, near Halifax, and J. Harmer, 10 Broad Street, Halifax, Yorkshire.
- 11,495. Supports for detachable wheels and rims. F. J. Keegan and Dunlop Pneumatic Tyre Co., Alma Street, Coventry.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

- 425,176 (January 24, 1911). H. Dittmar. Fabric for balloons.
- 425,186 (January 24). A. Scherber. Pneumatic cushion.
- 425,225 (January 25). E. Radke. Wheel with elastic tire for vehicles.
- 425,310 (January 27). J. Rense and C. Reuse. Improvement in rubber tires.
- 425,355 (January 28). Société des Etablissements Moreaux & Cie. Anti-skid bandage for pneumatic tires.
- 425,358 (January 28). V. Mazillier. Wheel tires.
- 425,397 (January 30). M. Desson. Improvements in pneumatic tires.
- 425,507 (February 1). J. Touzelet. Elastic tire.
- 425,560 (February 3). B. Buscaglia. Elastic tire for vehicle wheels.
- 425,580 (February 4). J. Steinberg. Improvements in pneumatic tires for automatic repair.
- 425,658 (January 28). J. Boenze. Rotating rubber chair tips for boot heels.
- 425,691 (February 8). H. E. Rechner. Automobile and other tires.
- 425,724 (April 12, 1910). A. Desson. Process for manufacture of pneumatic covers for vehicle wheels.
- 425,739 (April 12). Société Anonyme Pneu Cuir "Samson." Method for reconstruction of old pneumatic tires.
- 425,741 (February 4, 1911). Société des Anciens Etablissements Houry et Filleul-Brohy. Wheel tires for cycles and other vehicles.
- 425,753 (February 7). T. L. Cathene. Elastic tire with rigid internal rings.
- 425,767 (February 15). W. Butterfield & Jones. Wheel tires for automobiles and other vehicles.
- 425,767 (April 23, 1910). H. de Chardonnnet. Elastic tires with spirals of metallic wire for wheels of all kinds of vehicles.
- 425,999 (February 13, 1911). Russian-American India-Rubber Co. "Treugolnik." Side elastic for leather foot-wear.
- 426,172 (February 17). B. Husing. Improvements in pneumatic tires.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Robert, Ingénieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

- 236,908 (from June 24, 1910). Naamlooze Vennootschap Hollandsche Zyde Maatschappij, Amsterdam. Plastic mass from milk.
- 237,071 (from October 12, 1910). Adolphe Dejardin, Brussels-Etterbeck. Appliance for chopping up rubber vines and plants.
- 237,228 (from June 3, 1910). Rudolf Zimpel, Gross Lichterfelde East, Berlin. Manufacture of filling substance for vehicle tires.
- 237,913 (from August 13, 1910). Naamlooze Vennootschap Allgemeene Uitvindende Exploortatie Maatschappij, Amsterdam. Elastic material similar to rubber.
- 237,719 (from April 5, 1910). Rudolf Simonek, Stránka near Melnik, Bohemia. Anti-skidding appliance for vehicles.
- 237,789 (from February 5, 1910). W. Pahl, Dortmund. Process for coagulation of rubber latex.
- 237,970 (from September 11, 1910). Andreas Katzensteiner, Oberndorf a. N. Rubber substance for closing air valves of tires.
- 238,059 (from December 10, 1909). Wilhelm Buess, Hannover. Tire valve opened by pump.
- 238,060 (from July 26, 1910). Francesco Allasia, Bricherasio, Italy. Protective covering for vehicle tires.
- 238,061 (from November 25, 1909). Rudolf Krasemann, Fischergrube 36, Lubeck. Metallic jointed covering for pneumatic tires.

BROOKLYN HAS ALWAYS BEEN LOOKED UPON AS THE particular habitat of the rubber plant, but it seems the cult is spreading westward and has got as far as Jersey City, where the police records show that during the last two weeks of August there were 25 separate complaints of thefts of rubber plants. That thieves should steal them and that their owners should make such an outcry about the matter shows the popularity of the rubber plant in Jersey City, but the palm must still be accorded to Brooklyn, where the rubber plants are so constantly and carefully guarded that there is no record that they have ever been burglarized.

The Editor's Book Table.

NOTES SUR L'HEVEA BRASILIENSIS EN COCHINCHINE. BY J. Lan. Saigon: Imprimerie P. L. Schœnk. 1911. 11 p. 8vo. Pp. 143.]

ASIATIC plantation rubber being now an accomplished fact, the story of its introduction has passed into the domain of history. Yet a good deal depends on the manner in which such a topic is presented. In the handbook dealing with the cultivation of the *Hevea Brasiliensis* in Cochin China, J. Lan, Director of the Cochin China Agricultural and Commercial Services, and thus an official authority on the subject, connects the past with the present by referring to the introduction of *Hevea* into Asia, by the help of plants raised at Kew from seeds gathered on the banks of the Amazon by H. A. Wickham.

Dealing with *latex*, a relatively large portion of the 143 pages is devoted to its analysis, extraction and coagulation, the work being thus of special interest to planters able to read it in the original French. Expanding the range of his subject Mons. Lan then takes up the questions of climate and soil, sowing, and maintenance of the plantation, leading up to the more general points.

According to figures quoted there were in Ceylon in 1909 about 220,000 acres in *Hevea*; while at the same period the Malayan Peninsula then had more than 250,000 acres. The area of *Hevea* in Borneo and Dutch India was over 90,000 acres, while Southern India and Burma represented 25,000 acres.

The most recent statistics are those of Cochin China itself, which may be summarized as follows:

Provinces.	Acres bought or under concession.	Acres planted in <i>Hevea</i> Jan. 1, 1911.
Baria	30,000	1,350
Bienhoa	70,000	2,500
Giadinh	12,500	5,000
Hatien	6,500	450
Tay Ninh	3,500	90
Thudaumot	11,500	1,300
Total	134,000	10,690

There is consequently plenty of Cochin China *Hevea* in view.

In the final passage of this interesting work is reproduced the opinion of H. Brenier, Inspector General of the Agricultural and Commercial Services of Indo-China, which gives an instructive view of the outlook from a French standpoint: "In a word only those enterprises will survive in the crisis of plantation rubber (to be foreseen in ten years, and probably sooner), in the conduct of which, under equal natural conditions, the *human factor* will predominate, though good sense and opposition to excessive capitalization. Intelligence and knowledge must be applied to the direction by the judicious organization of a numerous and efficient staff, attached to the soil by comfortable and hygienic conditions, as well as by suitable remuneration."

O PLANTIO DA BORRACHA (HEVEA BRASILIENSIS) E A PRODUÇÃO DO CAUCHO (Castilloa, Ulei, Warb.). (These apresentadas ao Congresso Commercial, Industrial e Agrícola do Amazonas, em Fevereiro do 1910.) By J. A. Mendes. Pará, Brazil: Livraria Escolar. 1911. [Paper. 8vo. Pp. 56.]

In this reprint of recent date two papers are reproduced, which had been read by Senhor J. A. Mendes at the Amazonas Commercial, Industrial and Agricultural Congress of February, 1910. In the first-named paper he deals, among other points, with his visit to the United States in the preceding year, on which occasion he had introduced to the American importing trade his improved method of preparing *Hevea* and *Cauchó*. In the statistical tables, which he quotes, is shown the rise of the Amazonian production

during 10 years from about 50,000,000 pounds of rubber and 5,000,000 pounds of cauchó in 1899 to about 68,000,000 pounds of the former and 18,000,000 of the latter in 1909.

The second paper deals with the history of cauchó production, the figures of which are given in the statistical table already referred to.

DANGERS, MISTAKES AND IMPROVEMENTS CONNECTED WITH the Production of Rubber in Asia. By D. Sandmann. Berlin: 1910. [Paper. 8vo. 41 pages.]

WHILE this interesting booklet only deals with actual facts as late as 1909, its contents, as far as the planter is concerned, are of ever present interest. After dealing with the historical and statistical features of the subject, Herr Sandmann discusses the Asiatic labor question as affecting rubber production, quoting the opinion of an experienced planter to the effect that in some years' time the amount of rubber produced will not depend upon how many trees are ready to be tapped, but upon how many workmen are to be had to do the work. Hence further improvements in the methods of planting and preparing the latex will be necessary to lessen the difficulties arising from lack of laborers. In pursuance of this idea the author then enlarges upon certain points of importance for the further development of plantations, which will appeal to planters in general.

GEOLOGY OF THE GOLD FIELDS OF BRITISH GUIANA. BY J. B. Harrison, C.M.G., M.A., F.I.C. and F.G.S., Director of the Department of Science and Agriculture and Government Geologist, Georgetown, Demerara. 8vo, 320 pp. with numerous illustrations; historical, geographical and other chapters by Frank Fowler, Commissioner of Lands and Mines, and G. Wilgress Anderson, F.G.S., F.R.G.S., Government Surveyor, and an appendix giving the laws and regulations governing the mining industry. Published by the direction of His Excellency Sir Frederick M. Hodgson, K.C.M.G., Governor of British Guiana. London: Dulau & Co.

WITH an opening chapter on the "History of Gold Mining in British Guiana," in which statistics showing the output of the precious metal are presented, the work proceeds to give an account of the general physical and topographical features of the colony and the petrography of its geological formations, illustrations made from photographs showing the nature and wild beauty of the colony scenery. The auriferous and diamantiferous deposits, their occurrence, making and output, are considered at length, the concluding chapters being devoted to information of a practical character, for those engaging in mining operations in the colony. A carefully compiled index completes the volume, which constitutes a valuable and instructive addition to the literature descriptive of British Guiana and its resources.

INTERNATIONAL RUBBER EXHIBITION (LONDON, 1911) CEYLON Handbook. By R. H. Lock, M.A., Sc.D., Assistant Director Royal Botanical Gardens, Peradeniya, and C. O. Macadam. Illustrated. With a number of photographic views. [Octavo, 32 pages; stiff paper covers.]

CEYLON is an exceedingly interesting country, viewed from a rubber standpoint; not only because of the magnitude of the industry of rubber planting in the island, but particularly because the first rubber trees planted in the East were planted in Ceylon. This little pamphlet, which was intended primarily for the London Exhibition, is full of useful information. It describes the climate, topography and agricultural products, as well as the characteristics of the various races that constitute its inhabitants.

The first rubber trees were planted in Ceylon in 1876 from the seeds secured in the Amazon country by Mr. Wickham. One of those original trees yielded 160 pounds of dry rubber in the two years 1909 and 1910. In 1900 only 1,750 acres had been planted to rubber—in the spring of the present year this number had increased to 238,822. This little book pictures a very encouraging outlook for rubber planting in Ceylon.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

Crude Rubber Imported Into Japan in 1910.

Report by Japanese Customs Office of the Department of Finance, July 23, 1911.

THIS year's crude rubber imported into Japan has amounted to 1,590,891 pounds in quantity and \$1,476,892 in value, showing an increase of 259,066 pounds and \$765,584 compared with 1909. The details of the above are as follows:

	1910.		1909.	
From	Pounds.	Value.	Pounds.	Value.
British India	54,505	\$44,241	46,448	\$34,360
Federated Malay States..	898,543	605,091	493,536	207,409
Dutch India	120,333	68,959	303,849	154,512
Philippines			20,476	9,510
Great Britain	313,517	465,555	268,553	206,937
Germany	13,972	20,223	4,905	3,336
United States of America	86,013	119,445	172,805	74,857
All Other Countries.....	104,008	153,378	21,253	20,387
Total	1,590,891	\$1,476,892	1,331,825	\$711,308

The increase of crude rubber imported in 1910 was the result of a greatly increased demand because of the development of rubber manufacturing. For example, the Dunlop Rubber Company, which was established at Kobe in 1908, and had principally manufactured tires for bicycles had gradually by the end of 1909 increased the variety of its rubber manufactures to meet the greatly increased demand. Their crude rubber was all imported from Singapore.

The crude rubber imported from Singapore was divided into two kinds; one imported through Singapore from elsewhere, and the other produced in Singapore; and this year's increases were in the former grade. The crude rubber imported from Java and the Philippines to Japan was mostly wild rubber, but in the future we will see both wild and plantation rubber imported here, for there are many rubber plantations in Java and Philippines. The crude rubber from North America was divided into two kinds, both imported through North America from Brazil. Thus the greater part of the crude rubber imported into Japan comes generally under six classifications—India Rubber, Borneo rubber, plantation Pará rubber, gutta-percha, balata and jelutong—of these six kinds jelutong is in some small demand for mixing with other materials. The quantity of this kind imported in 1910 amounted to about 6,667 pounds, being imported from Singapore. From British India some India rubber and plantation Pará rubber was imported; from Singapore some India rubber, plantation Pará rubber, Borneo

rubber and gutta-percha. From Great Britain, Germany and the United States of America, all being market places, all kinds of crude rubber were imported. Balata was imported principally from Great Britain. Pará rubber was imported for the reason that excepting large rubber mills, many manufacturing companies were short of stock and used Pará with other descriptions.

As to the price, the highest was Pará rubber from South America, the next plantation Pará, the third India rubber and the fourth Borneo rubber. Some of the crude rubber from Africa was high-priced and some of it cheap.

Speaking about the market price of these rubbers, the rubber which was recognized as the standard of value was fine Pará rubber from South America, which is said to be the best kind of crude rubber in the world and to set a standard price for all other crude rubbers. The price of fine Pará rubber rose from the middle of February, 1910, finally reaching \$3 in the London market in April of that year. Afterward the price of fine Pará rubber dropped down to 4 yen, 30-40 sen (\$2.09—14). In August

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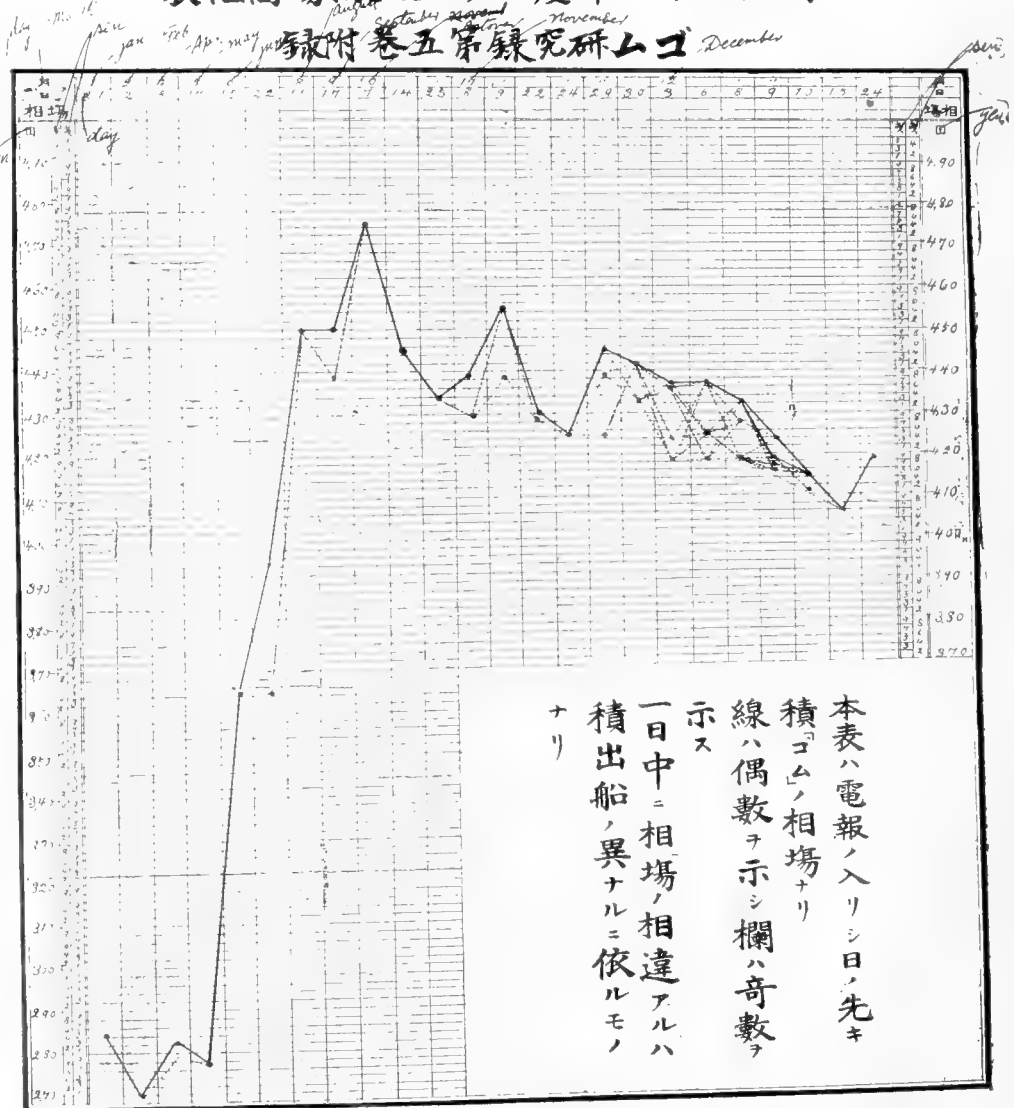


CHART SHOWING PRICE FLUCTUATIONS OF PARA RUBBER IMPORTED INTO JAPAN IN 1909.

it was down as low as 3 yen, 10 sen (\$1.51), and afterward gradually rose higher and, finally, by the end of October rose to 3 yen 80 sen (\$1.84). From the beginning of November to the end of the year, the price dropped down to 3 yen 30 sen (\$1.60).

The market price of all other kinds of crude rubber at the end of the year was as follows:

Borneo rubber, first's, per 100 kin (133½ lbs.)	yen 200.00	(\$97.08)
Borneo rubber, seconds, per 100 kin (133½ lbs.)	yen 170.00	(\$82.53)
Plantation Pará rubber, firsts, per lb.	yen 3.00	(\$1.47)
Plantation Pará rubber, seconds, per lb.	yen 2.80—90	(\$1.36—41)
Pará rubber (from South America), common, 1 lb.	yen 3.50	(\$1.69)

Borneo rubber was classified as of three kinds (from firsts to thirds) and the price of the thirds was 15 yen (\$7.27) cheaper than the price of the seconds. Plantation Pará rubber was divided into five kinds, but plantation Pará rubber imported into Japan was only of two kinds, firsts and seconds.

CONDITIONS IN JAPAN.

THE general economic conditions in Japan for the year 1910 were quite satisfactory. Owing to the national trait of thrift the savings of the people were large and material progress was made in the redemption of national loans; and available capital became abundant. There was noticed also a greatly decreased tendency to go into speculative ventures, a condition which prevailed after the war with Russia.

During the year there was an excellent volume of trade and particularly an increase in the exportation of raw silk and cotton yarn, in which the cost of production has been materially lessened because of the ability to get cheap capital and owing further to improved methods of manufacture.

JAPANESE JINRIKISHAS AND RUBBER TIRES.

By a statement in the "Gomu Shimpō," it would seem that the introduction of rubber tires for *jirikishas* is giving rise to complaints from the men who draw those vehicles. Instead of the occupants feeling the effects of the quicker motion caused by increased speed, they are practically saved from the results of such greater agility, which they in consequence do not appreciate. Moreover the *jirikisha* men object to the higher cost of rubber tires and to the increased tax which they involve.

JAPANESE IMPORTS OF TIRES.

THE largest proportion of the tires imported by Japan comes from the United Kingdom. During 1910 the imports represented about 307,522 lbs. of the aggregate value of \$358,385. Analysis of the figures shows:

	Pounds.	Value.
United Kingdom	291,574	\$340,467
United States	8,037	12,032
Germany	6,038	4,328
France	1,872	1,558
Total	307,521	\$358,385

THE CONGO AS AN OUTLET FOR RUBBER GOODS.

SINCE the Belgian Government has been giving serious attention to the commercial re-organization of the Congo, that country has become a center of interest for export trade. The business is said to be chiefly in the hands of German and Portuguese firms, who are in relation with the important local houses, from whom the small native dealers get their supplies of wearing apparel. In the last-named branch, rubber manufactures are said to be of importance.

HOW THE JAPANESE INCORPORATE.

SO MUCH interest has been shown by the trade recently in Japanese rubber companies that we have made an abstract of the articles of incorporation of one of the leading companies, which we give below:

PRELIMINARY.

The object of this corporation is to manufacture and sell general rubber goods.

Notice of this incorporation shall appear in newspapers designated by the district court.

CAPITAL AND STOCK.

The capital of this corporation shall be 300,000 yen, divided into 6,000 shares of 50 yen each. Each certificate shall represent one share.

The stock certificate of this corporation is to bear the name of the holder.

If the shareholder sells or transfers this certificate to another person, the name shall be changed on the face of the certificate by regularly signed application to this corporation; and a fee of 5 sen will be charged for each certificate so changed.

If the stockholder should lose, tear or injure the certificate he can get another by application on explaining the reason of his request and having two or more sureties, who shall endorse his application.

In case the certificate is lost, a 30 days' public notice must be given, cost of which will be charged to the applicant, and a fee of 20 sen will be charged for each certificate so replaced.

No stock will be transferred during the 30 days preceding the stockholders' meeting.

DIRECTORS AND INSPECTORS.

Five directors and three inspectors shall be elected from among the stockholders who have more than 100 shares of stock.

The term of office shall be three years for directors and one for inspectors, and both may be reelected.

The directors shall elect, from among their own number, a president and general manager.

Each director shall deposit 100 shares of stock with the inspector during his term of office.

When there is any vacancy among the directors or inspectors, provided there is the full number required by law, the vacancy may remain until the next meeting of the stockholders if the directors so desire. Any director and inspector elected to a vacant seat simply fills out the term of the director or inspector whose place he takes.

MEETING OF STOCKHOLDERS.

The stockholders' meeting shall be held twice a year—in January and July.

The president of the company shall act as chairman and preside at the stockholders' meeting. In case of his inability to preside, a director shall act as chairman in his place, and if there is no director to act as chairman, the chairman may be elected from among the stockholders present.

Whenever there is a tie vote at a stockholders' meeting, the chairman has the deciding vote.

The chairman has the right to adjourn a meeting or to change the place of the meeting.

SEMI-ANNUAL REPORTS.

The company must make a statement of its business each June and December, showing the net profits after subtracting all expenses and salaries of the officers and all losses from the gross profits of the preceding six months.

The salaries of the officers shall not exceed 10 per cent. of the net profit after subtracting all expenses.

(The value of a yen is about 50 cents gold, and that of a sen about half a cent.)

NEW TENNIS SHOE LISTS.

THE new price lists covering the tennis lines were sent out to the trade September 1 by the United States Rubber Co., the Lycoming Rubber Co., and the Goodyear's Rubber Glove Co., the last two being subsidiary companies of the United States Rubber Co. The list of the United States Rubber Co. is the most complete, giving prices, descriptions and illustrations of 12 different shoes mentioned in the list below. Net prices are as follows [last year's prices are noted in parenthesis]:

YACHTING BRAND

[Extra heavy, red rubber soles.]

	Balmorals.	Oxfords.
Men's	\$1.25 (\$1.30)	\$1.10 (\$1.15)
Boys'	1.20 (1.25)	1.05 (1.10)
Youths'	1.10 (1.15)	.95 (1.00)
Women's	1.15 (1.20)	1.00 (1.05)
Misses'	1.10 (1.15)	.95 (1.00)
Children's	1.05 (1.10)	.90 (.95)

YACHTING BRAND

[Leather insoles. Cartons.]

	Balmorals	Oxfords.
Men's	\$1.10	\$1.00
Boys'	1.00	.90
Youths'	.90	.80
Women's	.95	.85
Misses'	.90	.80
Children's	.85	.75

NATIONAL BRAND.†

[Leather insoles. Cartons.]

[Red rubber soles. Black rubber soles 10 cents less.]

	Balmorals.	Oxfords.
Men's	\$1.00 (\$1.05)	\$0.90 (\$0.95)
Boys'	.95 (1.00)	.85 (.90)
Youths'	.85 (.90)	.75 (.80)
Women's	.90 (.95)	.80 (.85)
Misses'	.85 (.90)	.75 (.80)
Children's	.80 (.85)	.70 (.75)

CHAMPION BRAND.†

[In bulk.]

	Balmorals.	Oxfords.
Men's	\$0.63 (\$0.70)	\$0.53 (\$0.60)
Boys'	.60 (.64)	.50 (.54)
Youths'	.57 (.58)	.47 (.48)
Women's	.59 (.60)	.49 (.50)
Misses'	.52 (.53)	.42 (.43)
Children's	.49 (.50)	.39 (.40)

GYMNASIUM BRAND.

[Leather insoles. Cartons.]

	Balmorals.	Oxfords.
Men's	\$0.85 (\$0.88)	\$0.75 (\$0.78)
Boys'	.75 (.78)	.65 (.68)
Youths'	.65 (.68)	.55 (.58)
Women's	.70 (.73)	.60 (.63)
Misses'	.65 (.68)	.55 (.58)
Children's	.60 (.63)	.50 (.53)

BATHING SHOES.*

[In bulk.]

	SHOES.
Men's	\$0.45
Boys'	.40
Youths'	.40
Women's	.40
Misses'	.40
Children's	.35

BASKET BALL SHOES.

[Pure gum, extra thick suction soles.]

	Balmorals.
Men's	\$3.00 (\$3.35)
Boys'	2.75 (3.00)

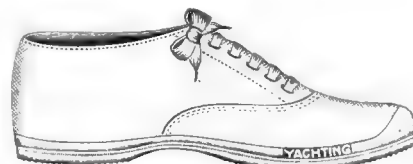
* White or brown duck.

† White, black or brown duck.

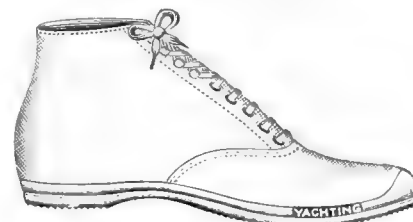
‡ White or black duck.

The most noticeable feature in these lists is the fact that several of the shoes are listed this year at lower prices than given in the last lists issued, which were sent out October 1, 1910

The only difference in construction in any of these shoes appears in the Yachting balm and oxfords, where the rubber



NEW YACHTING OXFORD.



NEW YACHTING BAL.

foxing in the new line has been brought well up over the toe for additional protection, as shown in the illustrations herewith.

The prices in the lists of the Goodyear's Rubber and Lycoming conform with those in the list mentioned above as far as the shoes are similar in construction.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufacturers of india-rubber and gutta-percha from the United States for the month of July, 1911, and for the first seven months of five calendar years:

MONTHS.	Belting Packing. and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
July, 1911	\$172,782	\$231,561	\$520,557	\$924,900
January-June	1,117,633	696,083	3,641,938	5,455,654
Total, 1911	\$1,290,415	\$927,644	\$4,162,495	\$6,380,554
Total, 1910	1,218,628	1,013,834	3,273,268	5,505,730
Total, 1909	996,859	637,090	2,393,563	4,027,512
Total, 1908	714,125	656,333	2,120,145	3,490,603
Total, 1907	795,965	694,075	2,352,870	3,842,910

The above heading "All Other Rubber," for the month of July, 1911, and the first seven months of the current year, includes the following details relating to Tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
July, 1911	values \$218,883	\$30,455	\$249,338
January-June	1,245,177	306,675	1,551,852
Total, 1911	\$1,464,060	\$337,130	\$1,801,190

SHIPMENTS TO NON-CONTIGUOUS COUNTRIES.

For the fiscal year ended June 30, 1911:

TERRITORIES.	Belting and Hose.	Boots and Shoes.	Tires.*	All Other Rubber.	TOTAL.
Alaska	\$61,276	\$156,590	\$826	\$19,400	\$238,092
Hawaii	60,152	17,249	190,079	70,493	337,973
Porto Rico	12,017	1,052	119,256	110,512	242,937
Philippines	106,206	6,487	197,580	87,079	397,352
Total, 1910-11.	\$239,651	\$181,378	\$507,741	\$287,484	\$1,216,354
Total, 1909-10.	176,070	222,037	.....	392,114	790,221
Total, 1908-09.	190,908	194,976	.....	264,722	650,606
Total, 1907-08.	162,602	235,044	.....	217,801	615,447
Total, 1906-07.	197,508	215,630	.....	167,488	580,626

* Included in "All Other Rubber" prior to July 1, 1910.

NEW TRADE PUBLICATIONS.

THE Michelin Tire Company (Milltown, New Jersey) has just added another guide book to the number already issued covering European countries. This latest book is called the "Guide to the British Isles." The company has now issued a guide book of practically every European country at all affected by tourists. These guides are very useful to Americans doing Europe in a car.

The Firestone Tire and Rubber Company (Akron, Ohio) has just issued a book of instructions covering the use of tires, the application of side wire, internal wire and cushion tires. The book is illustrated and full of interesting information.

The September number of "R-U-B-B-E-R," published by the Beacon Falls Rubber Shoe Co. (Beacon Falls, Connecticut), is like its predecessors a judicious compound of advertising for the rubber footwear made by that company and humorous skits and sketches. Not at all a bad way to advertise—mixing the exploitation of your goods with just enough humor to keep people reading.

The Luzerne Rubber Co. (Trenton, New Jersey) issues a catalogue entitled "Hard Rubber," which is a little book of 16 pages with cover, printed in black with sepia background on high grade paper. The catalogue illustrates the various goods made by the company—battery jars, rings, knobs, handles, discs, fountain pen stock, etc.

The H. W. Johns-Manville Co. is distributing its new electrical supplies catalogue No. 15, which contains over four hundred pages, and illustrates and describes the electrical products of the company. The catalogue is very attractive in design and contains many new additions to its already extensive line of electrical supplies, among which should be mentioned: "J-M" fibre conduit, for telephone, lighting, railway and electrical purposes; "J-M" linolite system of illumination for general lighting, third rail insulators, high tension porcelain insulators, incandescent lamps and lightning arresters. A new solder known as "Solder-all" is also described, consisting of a non-corrosive flux, in collapsible tubes. The catalogue is well arranged and completely indexed, making it easy to locate any article quickly.

The Republic Rubber Co., Youngstown, Ohio, is sending out a colored cut-out folder, printed by the four-color process, the front page of which shows a man and a woman in an automobile going around a narrow ledge over a beetling precipice and having every appearance of being a very hazardous undertaking. The ledge is not only narrow but the road is badly broken. From the general appearance of things you would say the man could not make it and, that the couple were in a tight place. The second page of the folder, however, shows that the venture was successful and the automobile is speeding on. It is still, however, clinging to narrow ledges with towering peaks above and sheer decents below. This folder is intended to show what can be done with the Republic Staggard tread tires. It is a good piece of advertising.

INDIA RUBBER DOUGH.

Sometimes it is called "Tire-doh," often "Fix Tire," occasionally "Rubber Tread," frequently "Tite-Wad," oftentimes "Rubber Putty." It is really a thick self-vulcanizing cement which when crowded into a wound in a tire vulcanizes itself.

An American Consul in Great Britain reports that a business house in his district engaged in the manufacture of neckties, wants to get into communication with American manufacturers of suspender webbings.

The American Consulate at Rangoon, Burma, would like to be supplied with catalogues of American plows, especially bush plows, for use on rubber plantations.

OVER TEN MILLION PAIRS OF RUBBER HEELS A YEAR.

IT is computed that there are ten and a half million pairs of rubber heels worn in the United States each year. As each person who has the rubber heel habit is likely to wear out two pairs this would seem to indicate that the actual number of

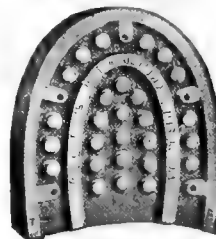
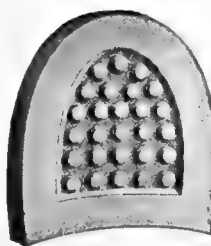


O'SULLIVAN RUBBER HEEL.



FOSTER RUBBER HEEL.

rubber heel wearers is about five and a quarter million or about 6 per cent. of the entire population. The most popular heels are the O'Sullivan, Foster, Morgan & Wright, Bailey and Converse. Mr. Humphrey O'Sullivan has probably been most instrumental in the popularization of the rubber heel. As an il-



BAILEY'S "WON'T SLIP" RUBBER HEEL.

lustration of the systematic and persistent work he has done in this direction the following incident might be cited: A few years ago a member of THE INDIA RUBBER WORLD staff chanced upon Mr. O'Sullivan in Cleveland, and asked him what he was doing there. "Well," said Mr. O'Sullivan, "I find that Cleve-



"FRICTION PLUG" HEEL.



"CAN'T SLIP" RUBBER HEEL.

land is only using half as many rubber heels as Buffalo. Now Cleveland is a third larger than Buffalo and ought to be wearing four-thirds as many rubber heels as Buffalo, and I am out here to see why it isn't." Undoubtedly Mr. O'Sullivan found out and forthwith remedied the situation.

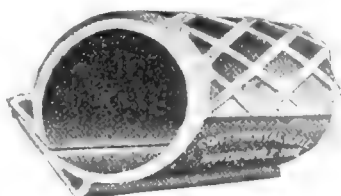
MOTORCYCLE TIRES.

THE wonderful expansion in the manufacture of automobile tires has been so spectacular that it has overshadowed tires for other purposes. It is not generally appreciated but the bicycle is still much used and tires are constantly manufactured for it.

does not include the million and a half value of exports to the American possessions—Porto Rico, Hawaii and Alaska. Canada is the largest consumer of our automobile exports, about 40 per cent. of the machines sent out of the country going over the Canadian border. The distribution of these exports is rather interesting. It is as follows:



UNITED STATES TIRE CO.



CONTINENTAL FRIE TIRE.



DIAMOND MOTORCYCLE TIRE.



GOODYEAR "PATHFINDER" TIRE.



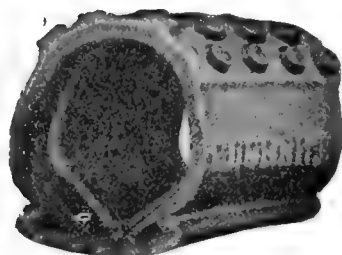
SPECIAL T. T. TIRE.



KELLY, RACINE.



VACUUM CUP NON-SKID TIRE.



THE B. F. GOODRICH CO.



FISK PREMIER TOUGHREAD TIRE.



"KOKOMO" DOTTED TREAD TIRES.

Stimulated by motorcycle racing and by the very considerable use of the motorcycle, there are demands for a large number of motorcycle tires. They must be of special construction and rank in size about half way between the bicycle tire and the small motor tire. All of the leading automobile tire manufacturers make them and the appended illustrations give a good idea of their external appearance.

LARGE EXPORTS OF TIRES FOR THE PRESENT YEAR.

FIGURES given out by the Bureau of Statistics, Department of Commerce and Labor, show that up to the present time the exports of tires for 1911 have amounted to the value of $1\frac{1}{2}$ million dollars. It is estimated that at this rate the exports for the year will reach the $2\frac{1}{2}$ million mark. This is a very interesting fact when we consider that only ten years ago, in 1901, the total value of exports of automobiles and all their accessories was less than 1 million dollars. In fact, as late as 1905, the entire value of automobiles, including accessories and tires exported, only reached $2\frac{1}{2}$ million dollars. The value of all automobile exports, including all accessories for the present year up to the middle of September, amounts to $12\frac{1}{2}$ million. At the same rate for the year, the total will reach the 20 million dollar mark. This

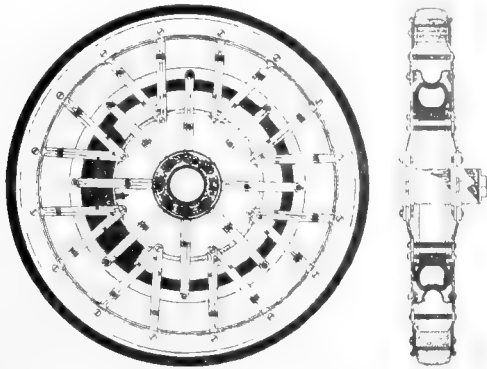
Of the practically 9 thousand machines exported in the seven months ending with July, 3,724 went to Canada; 1,875 to the United Kingdom; 938 to British Oceania (chiefly Australia and New Zealand); 477 to Asia and Oceania other than British; 444 to South America. 273 to France; 175 to West Indies and Bermuda; 147 to Mexico; 137 to Italy; and 73 to Germany. These figures do not include the shipment to non-contiguous territory of the United States, the number sent to Hawaii in the seven months in question being 202; to Porto Rico, 154; and to Alaska, 2.

HOW MANY AUTO TIRES FOR 1912?

It is estimated that there are about 500,000 automobiles of every description, now owned and operated in the United States, and that this number will be increased by probably 100,000 the coming year—making in use before the end of 1912, something like 600,000 cars. It is an interesting speculation as to how many tires that number of vehicles will call for. It is probably safe to estimate, that on an average, these cars, big and little, will use eight tires during the year, which will give the tire manufacturers a home market of something like 4,800,000 tires. If this estimate holds good, and prices remain where they are, tire manufacturers will not have much ground for complaint during the coming year.

A NEW PNEUMATIC SUSPENSION WHEEL.

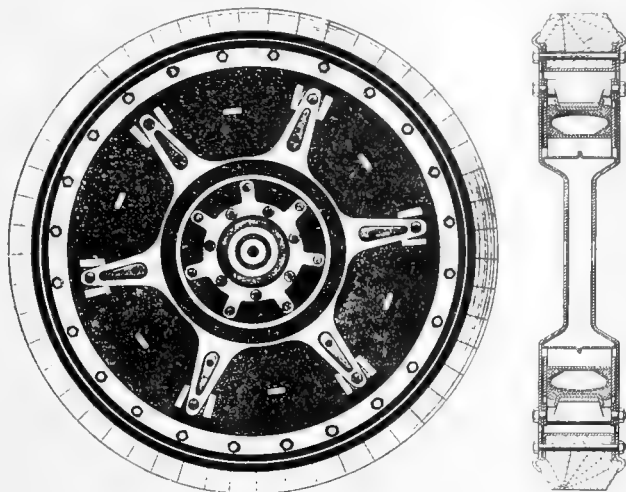
FIVE years ago a pneumatic iron tire was brought out and put on the market intended for heavy trucks and sight-seeing autos. The general principle of the wheel was that it was made in two parts, an inner wheel and an outer wheel, and between the two, about eight inches from the extreme rim, was



RUTHERFORD'S IRON TIRE PNEUMATIC WHEEL.

a pneumatic rubber tube. This wheel did not make any great progress towards general adoption, but the principle on which the wheel was operated has been the subject of a great deal of thought among inventors since that time. As a result of this a new auto wheel called the Pneumatic Suspension Wheel, and made by the Pneumatic Suspension Wheel Company, of Stamford, Connecticut, has recently been thoroughly tested on 30 heavy motors in New York and Brooklyn, some of the trucks weighing as much as 12 tons.

This wheel also consists of a wheel within a wheel, an inner pneumatic tube within a rubber shoe being placed between the two parts of the wheel. Steel plates and spokes keep this rub-



PNEUMATIC SUSPENSION WHEEL.

ber tube rigidly in position. It is claimed that this new wheel distributes the weight over two-thirds of the rubber tire instead of having it fall directly on the one point of contact. If this new wheel is a success, and it seems to have been thoroughly tested, it will be possible for the heaviest trucks to enjoy the advantage of pneumatic tires. The actual tire on this new wheel is composed of sectional wooden blocks, five inches deep, made of rock elm, and said to be capable of running 1,500 miles without the necessity of replacement. Side view and sectional view are shown in the accompanying cuts.

SCRAP RUBBER AND THE 10 PER CENT. DUTY.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

THE scrap rubber trade of this country has of late been greatly disturbed in the execution of its peaceful calling by the inquisitorial activity of the United States Customs Department.

A number of consignments coming from abroad have been held up at the piers and submitted to the most minute examination, thus often delaying their delivery into the hands of the consignees for several weeks and inconveniencing practically the whole of the reclaimers' and rubber manufacturers' trade.

The fundamental reason for these vexatious proceedings is to be looked for in the wording of the customs tariff, which runs as follows:

No. 479. Waste, not specially provided for in this section, ten per centum ad valorem.

No. 591. India rubber, crude, and milk of, and scrap of refuse India rubber, fit for re-manufacture, and which has been worn out by use, to enter free.

Up till a few months back, every importer paid willingly 10 per cent. duty on all parcels of new scrap which he imported, and all other consignments were passed by the Customs free of duty. Of late, however, the Treasury Department has thought it advisable to submit the latter consignment to a closer inspection which, on the face of it, would not have disturbed anybody in the trade, as old rubber is always sold separately from the new. This, of course, is only reasonable as the rubber reclaimers often pay a fraction of a cent more for the latter, it being clean and ready for the machine, while the old scrap has to be submitted first to an expensive sorting and cleansing process. By going through the old scrap, the custom house authorities have now decided that any scrap which does not show actual signs of deterioration by use—even if it is made useless for its originally intended purpose by mechanical means, such as tearing or cutting up—must be classed as new scrap and 10 per cent. ad valorem duty paid on it, and they have even claimed this in some instances on the whole of the shipments, which, in their idea, contained new scrap. Now anyone who has the slightest knowledge of the grading of scrap knows that a good many articles, although used for years, might not show any outer signs of wear, as for instance, gas-piping, bottle rings, pump-washers, flanges, hard rubber goods, motor inner tubes, bicycle inner tubes, etc., etc. Some of these must be scraped for hygienic, others for mechanical reasons, and we repeat, would not show any signs of previous use.

There is no question of a doubt that these paragraphs were not originally intended to penalize the whole of the rubber trade, but that the wording of same has been misconstrued in a way which hampers the manufacturer, claimer and dealer alike in an unheard-of manner.

It is intended to bring this matter before Congress next session and to do everything to abolish these vexatious impositions.

We must have foreign scrap, if our manufacturers would not lose their position in the world's trade and we must have it enter free of duty whether it is rendered unfit for its originally intended purpose by use or by other means.

A powerful firm of attorneys has already been retained to take up this question at Washington and it is hoped that the whole of the scrap rubber trade, all india-rubber manufacturers and reclaimers will join hands. Several important firms have already expressed their willingness to give every assistance, but it is necessary that everybody in the trade should help and thus bring about the looked-for change.

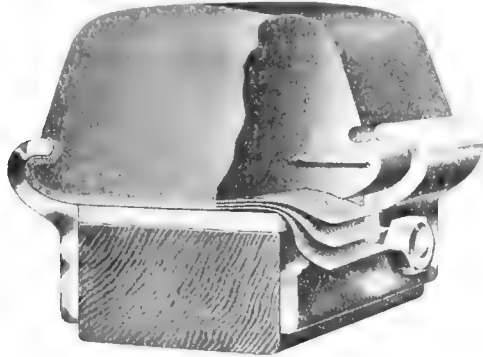
W. F. P.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

New Rubber Goods in the Market.

ONE PIECE MOTOR TRUCK TIRE.

THE Republic motor truck tire is made of one piece of rubber, the tread and base being inseparable. The base is made to conform to the inside of the clincher flanged rim though somewhat wider than the inside of the rim.



THE REPUBLIC MOTOR TRUCK TIRE

Cross wires are inserted through the base of the tire, about 1½ inches apart, for the purpose of stiffening the base and giving it rigidity and preventing the tire from pulling out of the rim. To increase the durability of the tire a strip of rubber harder than the tire compound is laid lengthwise through the center of the base and vulcanized securely to the base. The transverse wires pass through this hard strip which supports them and prevents them from being displaced under excessive strain.

Several layers of heavy frictioned fabric are placed about the entire base, completely covering the ends of the cross wires. This fabric helps to stiffen the base of the tire, resisting the wear caused by friction with the rim, and prevents the cross wires from coming in contact with the clincher flanges. [The Republic Rubber Company, Youngstown, Ohio.]

MOTORCYCLE LAMP COVERS AND WIND SHIELD.

EVERYBODY who uses a motorcycle will concede that it is a good idea to have the lamp covered, as it keeps it clean and in better burning order. The Nathan motorcycle lamp cover, made of



NATHAN'S MOTORCYCLE LAMP COVERS.

rubber covered cloth, is made for every style and description of motorcycle lamp.

A hand shield to keep the wind from rushing up the sleeve is a *desideratum* for the motorcyclist in cold weather. The Nathan



NATHAN'S HAND WIND SHIELD.

hand wind shield is devised to serve this purpose. [Nathan Novelty Manufacturing Company, Nos. 84-90 Reade street, New York.]

LAMP COVERS THAT FIT.

THE ordinary loose fitting lamp cover, which is nothing but a bag to tie round the lamp, is very likely, when taken off, to be thrown on the floor or in odd corners and is liable to get so soiled that it really doesn't contribute very much to the cleanliness of a lamp. A tight fitting cover made especially for a lamp



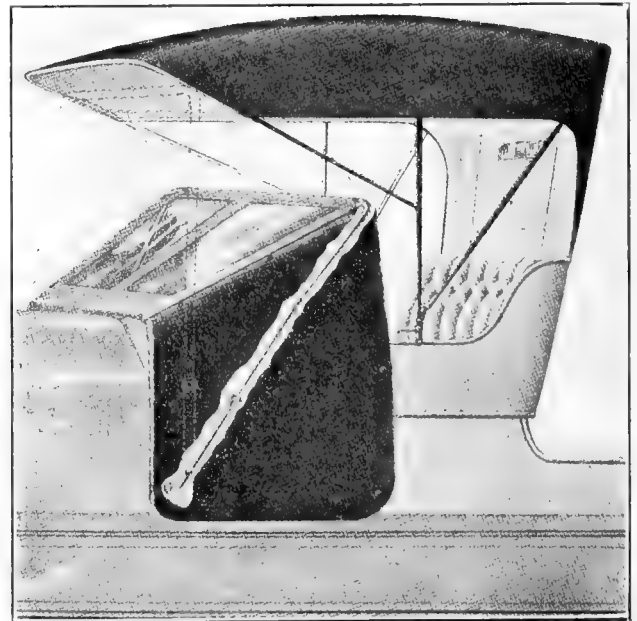
CLOSE FITTING LAMP COVERS.

is likely to receive better treatment and for that reason serve its purpose much more efficiently.

The Hopewell lamp covers are made of fleece-lined rubber cloth and are made to fit the lamp for which they are designed. They are made in four different styles—square side, round side, tail and search as shown in the accompanying cuts. [Hopewell Brothers, Newton, Massachusetts.]

SOMETHING NEW IN WIND SHIELDS.

THE cut shows a new top shield which is made of fiberloid and carriage cloth and attached at the base of the front part of the dash of the car, and supported at the top by a yoke-shaped frame, which is hinged at the base over a plunger lock. This



AN ADJUSTABLE WIND SHIELD.

enables the wind shield to be pushed forward and locked in an upright position. The advantages of this shield are, that it is adjustable, can be raised or lowered to meet the driver's line of vision, and can be readily removed from the car, simply through the loosening of two tension nuts. [Springfield Harness Co., Springfield, Massachusetts.]

THE GOODRICH TENNIS BALL.

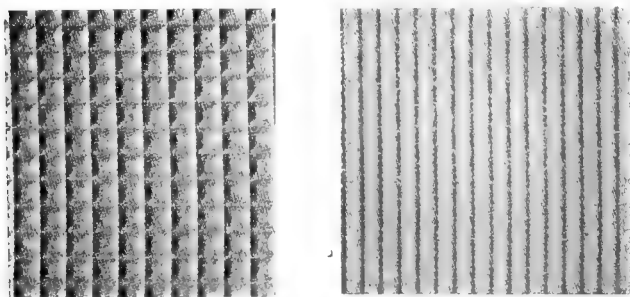
THE Goodrich Championship 1911 tennis ball has been approved by the United States National Lawn Tennis Association for use in all championship tournaments of every description, and its manufacturers have guaranteed that it will meet the associa-



tion requirements in regard to size, weight and bound. This ball is made entirely at the Goodrich factory, which gives it uniformity of construction. [The B. F. Goodrich Company, Akron, Ohio.]

LIN-RHUBER FLOORING.

LIN-RHUBER is the name of a new flooring intended for automobiles, running boards, motor boats, and is said not to be affected by gasoline, oil or grease. This flooring is made in any



AUTOMOBILE FLOORING

desired color and in various patterns, two of which are here shown—one showing a check pattern, the other being in parallel lines. [The Nairn Linoleum Co., Newark, New Jersey.]

A NEW SPORTSMAN'S JACKET.

THE "Kan't-Leak" garments for hunting, fishing and camping are very generally used. They cover hunting coats, vests, trousers, automobile and motorcycle suits, together with jackets and

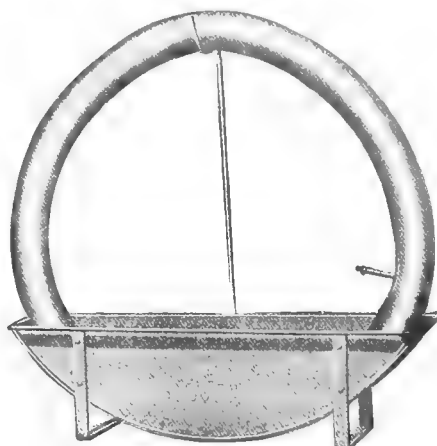


"KAN'T-LEAK" HUNTING JACKET.

bloomers for women. The illustration shows a waterproof hunting jacket. [Richard E. Hill & Son, 16 Boyden place, Newark, New Jersey.]

TANK FOR TESTING LEAKY TUBES

THE Dover testing tank is made of heavy steel, of double-seamed construction, and galvanized after it is completely made so as to render it rustproof. It has a rod furnished with an

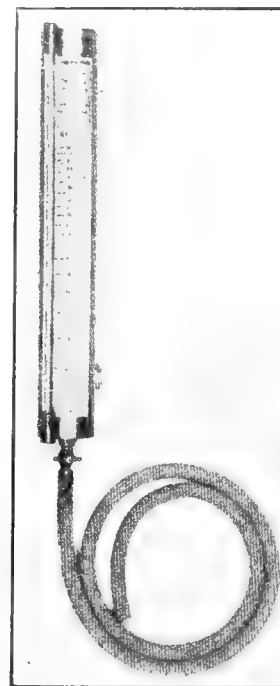


NEW DOVER TIRE TESTING TANK.

adjustable clamp, which holds the tube in position, and can be adjusted to conform with the size of the tube. The clamp on the rod is placed at the proper height, the tank is filled with water, and then the tube is turned until air bubbles show the leak. [Dover Stamping and Manufacturing Co., Cambridge, Massachusetts.]

INDICATOR TO SHOW GASOLINE CONSUMPTION.

THIS illustration shows a device simple but effective for measuring the quantity of gasoline that is used in driving a car. It is called The Jarrott "M. P. G." indicator, the initials meaning miles per gallon. The rubber tube shown under the graduated



JARROTT "M. P. G." PETROL INDICATOR.

scale is attached to the carbureter, which for the time being is detached from the tank. The vessel on which the graduated scale appears is filled with gasoline, then its consumption for a given mile is shown on the graduated scale. The indicator is easily attached and has no delicate parts to get out of order. [Chas. Jarrott & Letts, Limited, London, England.]

NEW STYLES IN MACKINTOSHES FOR MEN.

It will be discovered by a glance at the scene below, taken from a French fashion journal, that the well-dressed Parisian, as he promenades the boulevards this winter, will equip himself on



NEW PARISIAN WALKING COATS

rainy days with a storm coat hanging fairly long and very full, with a wide, low-cut collar, and decidedly sloping shoulders.

The two single figures also reproduce new Paris styles, show-



PARISIAN MOTOR COAT.



PARISIAN MOTOR COAT WITH CAPE.

ing what the proper equipment for the motorist will be, both coats being long and very full, and one having a cape to cover the head.

A SELF-FILLING FOUNTAIN PEN.

THE "Independent" self-filling fountain pen is made of polished hard rubber, both holder and cap. The gold pen is 14-karat gold, tipped with iridium. The self-filling device is very simple. The knob is unscrewed the full length of the thread, pressed down flush with the barrel. The nozzle of the pen is inserted in the



THE "INDEPENDENT" SELF-FILLING FOUNTAIN PEN.

ink, pressure on the knob is then released and the pen fills. The knob is then screwed down tight to the barrel and the pen is ready for use. It is cleaned by the same process, substituting

water for ink. The "Independent" has an unusually large ink capacity. [J. Ullrich & Company, Thames building, Thames and Greenwich streets, New York.]

THE PRESTO COLLAR.

THE Presto collar, which appears on women's storm coats, is, as its name suggests, one that can be quickly changed from one position to another. It is shown in the accompanying sketch,



THE PRESTO COLLAR.

first, turned down, as it would be worn in fair weather, and then turned up around the neck as it would be in a storm. [New York Mackintosh Co., New York.]

WATERPROOF SKIRTS.

There are many lady motorcyclists and for them particularly, as the sport is becoming more and more popular, special clothing has been designed. The illustration shows a tailor-made



"AURORA" MOTORCYCLE SKIRT.

skirt of waterproof cloth, sold under the Aurora brand. [Wilson Weather Coat Co., Aurora, Illinois.]

RUBOILIN FOR COVERS AND APRONS.

A MATERIAL that is "one-half the price of rubber cloth and absolutely proof against gasoline, oils and grease," ought certainly to be useful in a good many ways—provided it is as waterproof, light and pliable as rubber cloth—for rubber cloth certainly is affected by gasoline, oils and grease. But the statement quoted above is the claim the manufacturers make for Ruboilin for use in auto tops, coats, covers and upholstery, and especially for aprons. [The Ruboilin Co., 253 Broadway, New York.]

THE RUBBER TRADE IN SAN FRANCISCO.

By a Resident Correspondent.

IT is the general opinion that business should be somewhat better than it is at the present time before it could be said to be really good. There seems to be a steady, but not lively business, and in spite of the fact that the merchants are not seriously complaining they nevertheless would be pleased to see greater industrial activity and a bigger demand for goods. It being just prior to the mayoralty election in San Francisco, perhaps there has been some checking of business activity on that account, and if so, the cause will soon be removed, as the primary election will be held this month. With that over, and the breaking of first ground for the World's Fair of 1915 to take place next month, there should be a rapid development of commercial activity from that time on.

* * *

The Goodyear Rubber Co. report that they are busy now getting out their fall orders of boots and shoes, and they hope for plenty of rain so the trade can dispose of the stock and re-order again. Nobody wants to see a repetition of last year, when the rains held off until along in January. The rains have already started in the northern counties and further up the coast, and the firm confidently looks for a good season there.

* * *

R. H. Pease, Sr., president of the Goodyear Rubber Co., is away on a yachting cruise with John D. Spreckles and party, in the fine steam yacht owned by Mr. Spreckles. The cruise will include Santa Barbara, San Diego and all points of interest along the southern coast.

* * *

Mr. Lewis, of the Pennsylvania Rubber Co., is expected to arrive soon for a visit to the local house.

* * *

The Panama Rubber Co., located on First street, near Howard, which bought out the factory of the Phoenix Rubber Co., is now contemplating selling out to a Los Angeles rubber merchant.

* * *

The Quaker City Rubber Co.'s line, formerly handled by L. L. Torrey, of San Francisco, is now carried by Mr. Harris, who was sent out to San Francisco from the factory to succeed him. Mr. Torrey was formerly manager for the Pennsylvania Rubber Co.'s San Francisco branch.

* * *

Much concern and sympathy is being expressed by the friends of Mr. W. R. Pierce, who is now lying quite sick in the East. Mr. Pierce is now with the Cleveland Mechanical Rubber Goods Co. He was formerly manager for the Revere Rubber Co.'s branch in San Francisco.

* * *

Local houses are taking considerable interest in the fact that Seattle, Washington, is now in the market for 20,000 feet of hose. The specifications were such that the hose would go to the lowest bidder. The bids were opened September 1, and were as follows: The Fabric Fire Hose Co., net per foot, 75 cents; the American Rubber Co., 69.75 cents; the Diamond Rubber Company, 68 cents; the Gorham-Revere Rubber Company, 67.9 cents; the Eureka Fire Hose Manufacturing Co., 67 cents; the Caldwell Machinery Co., 61 cents; the Bowers Rubber Works, 59 cents; the Pacific Coast Fire Supply Co., 58 cents. After due consideration, however, the board in charge decided to reject all bids, and it is understood that they are going to so word the next advertisement for bids as to admit of a better quality of hose. It occurred to the officials in Seattle that they have been buying a good deal of hose recently, and on comparing notes with other large cities, they find that they have been buying much more than other cities in proportion to their needs. They decided that it might be their demands did not permit of a hose that would have the desirable lasting qualities and their next bids will be more in conformity with the quality demanded by other large cities of the coast.

Mr. A. H. Gregory, representing the New York Belting and Packing Co., has just returned from an extensive trip through Alaska. He found that the demand for rubber merchandise at the present time is on the decline in that territory. Owing to the fact that much of the mining country has been placered out, there are vast areas of worked out and deserted claims, so that the people have left many towns that were once thriving. In Dawson he found 70 per cent. of the residence section deserted, and the merchants leaving in large numbers. He gives Fairbanks three years more probably before its placer mines are worked out. Nome is in better condition, because preparations are being made there for dredger mining. The fact that big companies now control most of the mines has tended to reduce the population, as they employ as few men as possible. On the whole the rubber business in Alaska is on the decline.

* * *

The Bowers Rubber Works have just completed a new building at the factory for the moulded rubber hose. They have purchased considerable new equipment, so that the capacity for turning out moulded rubber hose will be increased 50 per cent. this year.

* * *

J. H. Russel, Jr., representing the H. B. Sherman Manufacturing Co., of Battle Creek, Mich., is now visiting the San Francisco trade.

* * *

E. S. Allen, representing the W. D. Allen Manufacturing Co., of Chicago is now visiting the merchants of this city.

* * *

W. L. Eaton, with the New York Belting and Packing Co., is about to start for his vacation at Klamath Lake, where he expects to enjoy some fine sport at fishing.

* * *

Mr. Rigdon, with the Gorham-Revere Rubber Co., has returned from his tour of the eastern factories where he was studying conditions and getting himself in touch with the newest things in the East.

* * *

The Pennsylvania Rubber Co. report that the vacuum cup tires which they are now for the first time placing on the market for bicycle and motorcycle use, are meeting with immediate success.

* * *

The local rubber manufacturers' association has called a meeting to be held tomorrow, more for the purpose of socially getting together than anything else.

* * *

The city of San Francisco, when it last purchased fire hose laid down rules of its own as to how the hose should be built. All but two of the rubber houses refused to bid according to the requirements. Of the two, the lowest bidder got the order, and it now develops after a test having been made of the hose he produced, that 3,600 feet are defective and will have to be replaced. This is unsatisfactory business to all concerned.

GETTING THE MOST OUT OF TIRES.

A great many people will recall the straight shoes they used to wear in childhood that were worn on the left foot one day and on the right foot the next, so as to get the greatest possible amount of wear out of the shoe. There are a great many straight-last rubber boots worn today for the same reason; and it appears that the same principle works equally well in tire service. It has been found that the tires on the right side of the machine are worn out more rapidly than those on the left side, owing to the fact that the right side tires strike the curb more frequently, and on country roads have to run over the rough ruts when the machine is turning out to pass another conveyance. So if the right side tires, after they become somewhat worn, are shifted to the left side the wear is equalized. A further distribution of wear can be effected by changing the front and rear tires, as the greater weight falls on the rear tires.

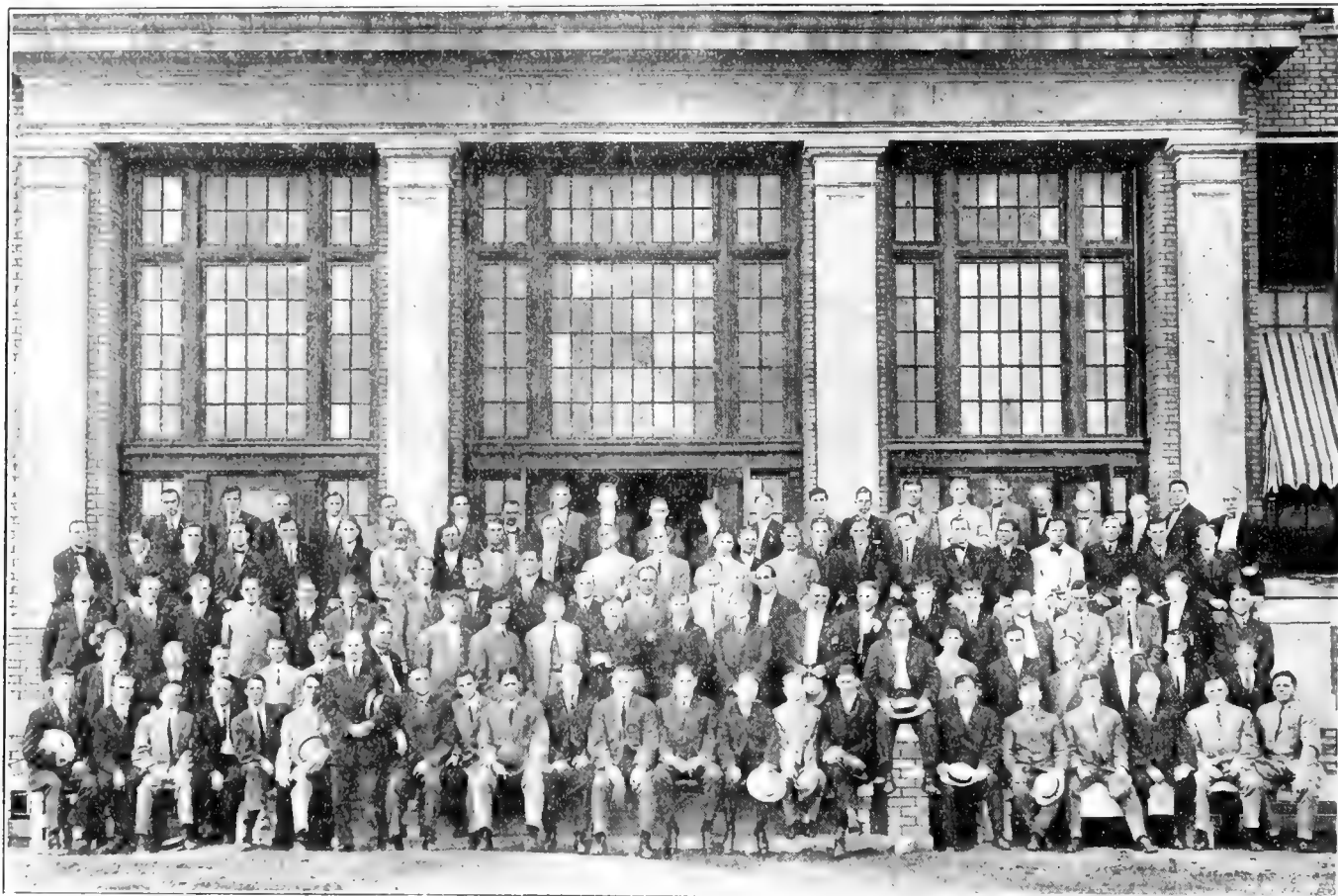
THE RUBBER TRADE AT AKRON.

BY A. K. DUN, CORRESPONDENT.

THE Firestone Tire and Rubber Co. is rearranging the machinery in the old and new factories, and completing plans which this company has been working on for the last two years. They are also improving the space between the factory buildings and the main road, which is practically 600 feet long and 300 feet wide, by placing convenient drives, walks and lawns in this space.

During the first week in September, the annual salesmen's conference was held at the factory. The study covered practically a week, the meetings occupying two days. Part of the instruction was given by A. J. Litch, an expert in advertising.

The Goodyear Tire and Rubber Co. have planned for an extensive rearrangement and extension of their factory. This consists of moving much machinery and the enlarging of the tire department in every way. Ultimately, it will necessitate the building of new buildings. The present machinery will almost all be rearranged, and will be placed more compactly, conveniently and systematically, and some new machinery will be placed in the factory to eliminate labor. One of the new machines will do the work of several of the old ones. This rearrangement has been in contemplation for some time and the rapid growth of the company's business has necessitated the change between this year's work and next year's work. This change will necessitate the closing of part of the factory for one or two weeks so that the alterations can be made without any hindrance. The company hopes by these changes and additions to be able to manufacture in the neighborhood of 3,500 tires per day.



SALESMEN OF THE FIRESTONE TIRE & RUBBER CO., AKRON, OHIO, ON THE STEPS OF THE NEW FIRESTONE PLANT.

The photograph reproduced above shows a hundred members of the selling force of the Firestone Tire & Rubber Co., and was taken in front of the company's plant in Akron, which includes an enormous tire building having ten acres of floor space all under one roof.

The salesmen were shown through the new factory, impressing upon each the care, preparation and painstaking effort and saving that is put forth upon each step of the tires manufactured in order to bring about the best result through system, economy, thoroughness and durability. The work of the year was thoroughly analyzed and suggestions for the ensuing year's business and plans for bringing these suggestions to fruition were dwelt upon. The meeting ended with a banquet served by 125 girls of the office force in the new dining room of the factory. The tables were in the form of the capitals "F" and "T."

The large dam being built by this company had a severe test during the recent rainfall of four inches in twelve hours. Part of the embankment was damaged.

* * *

The Swinehart Tire and Rubber Co. is running day and night. The annual meeting of the stockholders of this company was held at the offices of the company, Monday, September 18, at one o'clock. The company's business shows an increase over the previous year of 20 per cent., and the prospects for the coming year are very good.

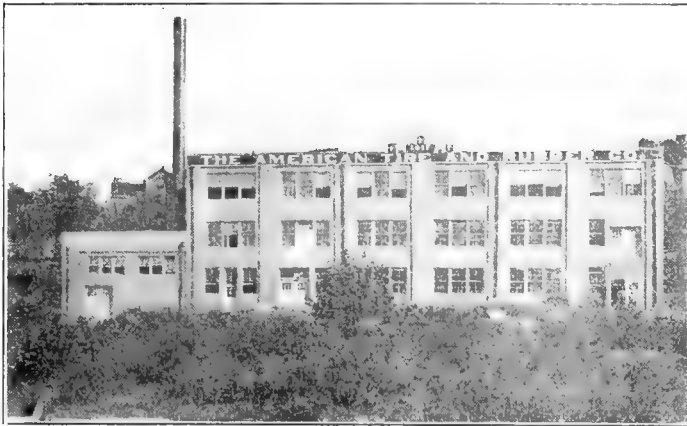
The following were elected directors for the ensuing year: August Blessman, R. A. May, Thomas F. Walsh, Joseph Dangel, E. L. Mather, William McWeldon and W. W. Wuchter. After the stockholders' meeting the board was organized and the fol-

lowing officers elected: W. W. Wuchter, president and general manager; Joseph Dangel, vice-president; C. O. Baughman, secretary; R. A. May, treasurer.

The company increased its capital stock from \$400,000 to \$800,000, all of which money is to be invested in the business. The company has not been able to supply the demand for tires. An automatic sprinkling system has recently been installed as well as a new telephone system. The office has been enlarged and rearranged, making the rooms more convenient.

The solid tire business continues steady through the four seasons and the company is making a special effort to equip all kinds of fire apparatus and all types of commercial cars.

The American Tire and Rubber Co., of Akron, Ohio, organized under the laws of Ohio, October, 1910, has a capital stock of \$200,000, all common, \$100,000 of which has already been paid and another \$100,000 is being issued for working capital. The



AMERICAN TIRE AND RUBBER CO., AKRON, OHIO.

officers of the company are as follows: Adam Duncan, president and treasurer; Gilbert C. Waltz, vice-president; F. L. Kryder, secretary. The directors are: Adam Duncan, Gilbert C. Waltz, E. L. Kryder, Harvey Musser, Gustavus Seiberling, C. M. Wertz, Frank Miller, F. E. Rowe and L. C. Henderson.

The company owns the above factory and site of three acres located along the B. & O. and Northern Ohio Railroads, within a half mile of the center of Akron. The factory building is completed and machinery and equipment are now being installed. The factory is practically fireproof and covers about 25,000 square feet floor space. They will manufacture a complete line of inner tubes, repair stock and casings. Later they expect to exploit patents which they now hold for demountable and solid tires and may also reclaim rubber under a special process of their own. The officers expect to have the company in full operation within sixty days.

* * *

The board of directors of The Portage Rubber Co., at its regular quarterly meeting voted to purchase new equipment for tire making. They expect to increase their capacity to 100 tires per day. They will install a sprinkling system as well as a new pumping plant. The quarterly dividend was declared at this meeting and O. S. Welty of Canal Dover was elected a director.

* * *

The present condition of the rubber trade in the Akron factories has shown an increase in business over other years, and the fall trade especially has continued strong, the Diamond, Goodyear, Firestone, Swinehart and B. F. Goodrich running day and night, and the other factories are busy. Mr. E. C. Tibbetts of the B. F. Goodrich plant accounts for this long sales season by the fact "the owners of cars, even the small ones, are making them do more work than formerly. The runabouts are touring

the country more than before, and our business men are using their machines all through the year; also the aggregate number of cars in use is greater year by year, each of which has its effect on the volume and continuity of the tire business."

J. F. Singleton, advertising manager of The Firestone Tire and Rubber Co., has just returned from a trip through Europe. He says that there are few cars in Europe compared with the number in the United States, and the European cars are chiefly of expensive design, few low-priced cars being found. On the other hand, the motor truck business in Europe has far outstripped the motor truck business in this country and the trucks are mostly equipped with tires of French or German manufacture. The roads in Europe are, as a general rule, in good condition and the taxi-cab service there costs about one-fifth of what it costs here. He says that the best way to see Europe at the least expense is by touring in an automobile, as the roads are good, a person can see places of interest at his leisure, and can put up at many of the first-class smaller hotels which are good and not expensive. Mr. Singleton says that the advertising possibilities in Europe are great and that the lack of advertising along rubber lines at present gives a great field in that direction.

* * *

Mr. John C. Gibson has ceased to take an active part in the management of The Royal Rubber Co., and at present is handling and manufacturing a line of soft rubber goods.

* * *

The Faultless Rubber Co. of Ashland, Ohio, during the last year have increased the size of their plant, adding a large three-story addition.

* * *

Mr. H. W. French will move his office from 410 Flatiron Building to Rooms 713 and 714, Second National Bank Building. He has furnished a commodious suite of rooms with an elaborate sample room in which he will keep all known samples of rubber now on the market.

* * *

James A. Thompson, formerly with The Hartford Rubber Works Co., has charge of the Philadelphia branch of The Swinehart Tire and Rubber Co., and J. J. O'Connor has the agency for their tires in Bridgeport, Conn.

* * *

The Moore Architectural and Engineering Co. have organized with Mr. F. R. Moore, president and general manager; C. S. Heller, vice-president; M. C. Peck, secretary and C. E. Fasnight, treasurer. Mr. Moore has for the last six or eight months been operating a reclaiming plant. The apparatus is new and of his own design and the process is entirely new. The time covering the entire process is less than twelve hours. The apparatus is 8 horsepower and for agitation purposes he claims it will do the work of a 35-50 horsepower motor, used under present methods. He claims that his process will devulcanize all grades of rubber in less time and at less expense than the old processes.

The subject of rubber paving for streets was referred to by several of the speakers at the recent Rubber Exhibition in London, as likely to have an ultimate effect on the demand for rubber. Rubber pavement is not new in London. When the St. Pancras Hotel was built in 1876, it was necessary to provide a roadway under it leading to the busy St. Pancras railway station. To prevent annoyance to hotel guests, this roadway was paved with rubber, and it lasted for thirty years before any renewal was necessary. Under similar conditions, a roadway was laid under the Euston Hotel, in 1881, to the Euston station, and after twenty-one years' use it was found that only at the points of greatest wear had the original thickness of 2 inches been reduced to 1¼ inches. In both instances the traffic on the roadway was constant and heavy.

News of the American Rubber Trade.

THE PLYMOUTH RUBBER CO.'S NEW PLANT.

THE Plymouth Rubber Co. (Stoughton, Massachusetts), is pushing as rapidly as possible the building of its new plant in Canton. The last building, which is of brick construction, measuring 80 x 184 feet, and three stories high, is nearly completed. The company expects to move into this new plant in about four months' time; meantime occupying its Stoughton plant.

DIELECTRITE—A MOLDED INSULATION.

THIS is an invention by Gray Staunton. The claims made for it are as follows: That it resists high temperatures without softening; is impervious to moisture and oils; is not effected by alkalis or dilute acids; is not brittle; is mechanically hard and tough; can be molded in any form, even with threads; is not injured by ozone and has great tensile strength. It is manufactured by the Staunton Dielectrite Rubber Co., Muskegon, Michigan.

THE ELECTRICAL EXPOSITION OF 1911.

THE Electrical Exposition, which will be held in the Grand Central Palace, New York, from October 11, to the 21st, next, is expected to be the largest and most complete exhibit of electrical appliances ever seen in this city. It will show electrical apparatus of every kind, and be in operation both day and night.

THE SECOND ANNUAL ELECTRIC VEHICLE SHOW.

THE Electric Vehicle Association of America will hold its second annual convention in New York, on October 10, the convention being held at the same time and the same place, namely, the Grand Central Palace, as the Electrical Exposition.

A great many important papers will be read during the convention referring to electric vehicles, storage batteries, and other important accessories of the electric vehicle. Papers will be read at that time on "Electrical Vehicle Commercial Problems," by L. L. Lloyd and John Meyer, of the Philadelphia Electric Company; E. S. Mansfield, of the Boston Edison Company; and E. W. Curtis, Jr., of the General Vehicle Company. J. G. Henninger, of the National Electric Lamp Company, of Cleveland, Ohio, will contribute a paper on "The Proper Equipment and Lighting for an Electric Garage."

One entire floor of the Grand Central Palace will be devoted to the demonstration of various electric vehicles on a track provided for that purpose.

AUTOMOBILE SHOWS FOR THE COMING SEASON.

Six automobile shows have been announced for the coming season. Of these five will take place in New York, three of them in Madison Square Garden, and the other two in the Grand Central Palace. The sixth show will be given in the Chicago Coliseum. The different exhibits with their dates are given below.

Jan. 1-5, 1912.....	New York City, Grand Central Palace, Annual Show, Automobile Manufacturers' Association of America.
Jan. 6-13.....	New York City, Madison Square Garden, Twelfth Annual Show, Pleasure Car Division, Automobile Board of Trade.
Jan. 10-17.....	New York City, Madison Square Garden, Annual Show, Motor and Accessories Manufacturers.
Jan. 10-17.....	New York City, Grand Central Palace, Twelfth Annual Show, National Association of Automobile Manufacturers.
Jan. 15-20.....	New York City, Madison Square Garden, Twelfth Annual Show, Commercial Division, Automobile Board of Trade.
Jan. 27-Feb.10.....	Chicago Coliseum, Eleventh Annual Automobile Show under the auspices of the National Association of Automobile Manufacturers.

DIVIDENDS DECLARED.

THE board of directors of the Rubber Goods Manufacturing Company declared, on September 13, the fiftieth regular quarterly dividend of 1¾ per cent. on the preferred stock, and a dividend of 2 per cent. on the common stock, both payable September 19 to stockholders of record September 16, 1911.

The Firestone Tire and Rubber Company has placed its common stock on the same dividend basis as the preferred stock, both now paying at the rate of 7 per cent. per annum.

The Diamond Rubber Company has declared the regular quarterly dividend of 3½ per cent. on its stock, payable October 20. Books close October 14 and reopen on the 20th.

The Intercontinental Rubber Company paid a dividend of 1¾ per cent. on its preferred stock, September 30. It is expected that action on the common stock will be taken early this month.

The Canadian Consolidated Rubber Co. has declared a regular quarterly dividend of 1¾ per cent. on its preferred, and 1 per cent. on its common stock, both payable October 2, to stockholders of record on September 23.

RUBBER MEN IN THE MOTOR TRUCK CLUB.

THE Motor Truck Club, established in November last, and which now has about 60 members, is actively engaged in protecting the interests of the motor truck industry. Its offices are at 8 West Sixty-second street, New York, the president being Mr. F. B. Porter, manager of the Chase Motor Truck Company, and the secretary, Mr. Charles E. Stone, of the United States Motor Company.

Its membership includes various prominent rubber tire manufacturing firms, among others: Diamond Rubber Company, B. F. Goordich Company, Goodyear Tire & Rubber Company, United States Tire Company, Republic Rubber Company, Swinehart Tire & Rubber Company.

Through the combined efforts of the Motor Truck Club and the Automobile Club of America, motor trucks are now admitted to the piers of the domestic steam lines. They are, by latest accounts, still excluded from the piers of the foreign lines.

THE WESTINGHOUSE AIR BRAKE REPORT.

THE financial report of the Westinghouse Air Brake Co., for the fiscal year ending July 31, 1911, has recently been made public. Its manufacturing profit on sales of brake apparatus, compressors, repair parts and draft gear, aggregating \$8,036,193.44, as compared with \$12,463,004.91 last year, together with a substantially increased income from investments, enabled the company to pay the dividends declared during the year under review, totaling 20 per cent., to charge off \$161,667.12 on account of depression, development work and patents purchased, and to pass \$123,133.81 to the credit of general profit and loss account.

While the manufacturing profit was materially smaller than last year, the president expresses the hope that in view of the depressed condition of the railway supply business during the large part of last year, the stockholders will find the results satisfactory. A dividend of 5 per cent. was received in August on the company's holdings in the Russian Brake Co., showing a revival of equipment business in Russia. The other foreign companies in which the Westinghouse company is interested have also done an improved business during the last year. The company declares a regular dividend of 2½ per cent., an extra dividend of 1½ per cent. and a special dividend of 1 per cent., all payable October 10, to stockholders of record, on September 23.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks ending September 23:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend, April 30, 1900—1%.

Week	September	2	Sales	3,700 shares	High	37¾	Low	36¾
Week	September	9	Sales	2,100 shares	High	37	Low	36½
Week	September	16	Sales	1,100 shares	High	37¼	Low	36½
Week	September	23	Sales	8,600 shares	High	37¾	Low	31½

For the year—High, 47½, March 1; Low, 31½, September 23.

Last year—High, 52½; Low, 27.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, July 31, 1911—2%.

Week	September	2	Sales	400 shares	High	109¼	Low	108½
Week	September	9	Sales	200 shares	High	109	Low	109
Week	September	16	Sales	700 shares	High	109½	Low	107¾
Week	September	23	Sales	1,450 shares	High	108½	Low	104½

For the year—High, 115½, July 7; Low, 104½, September 23.

Last year—High, 116½; Low, 99.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, July 31, 1911—1½%.

Week	September	2	Sales	... shares	High	...	Low	...
Week	September	9	Sales	... shares	High	...	Low	...
Week	September	16	Sales	... shares	High	...	Low	...
Week	September	23	Sales	500 shares	High	71	Low	67

For the year—High, 79, March 1; Low, 67, September 23.

Last year—High, 84; Low, 59½.

SIX PER CENT. TRUST GOLD BONDS, \$19,000,000.

Outstanding of the 1908 issue of \$20,000,000.

Week	September	2	Sales	12 bonds	High	104½	Low	104
Week	September	9	Sales	41 bonds	High	104¾	Low	104
Week	September	16	Sales	33 bonds	High	104¼	Low	104
Week	September	23	Sales	74 bonds	High	104½	Low	103½

For the year—High, 105, July 15; Low, 102¾, March 5.

Last year—High, 106; Low, 102½.

PERSONAL MENTION.

THE following anecdote alleged to have been told by Mr. E. C. Benedict, and the accompanying photograph—considerably retouched—are both taken from the "Cosmopolitan Magazine." Mr.

Benedict was sympathizing with the owner of a motor boat who had lost a race through some sort of sharp practice. To show his friend that others had suffered misfortune, he told the following story of an old darky of his acquaintance who once lay seriously ill of fever:

This colored man was treated for a long time by one doctor, and then another doctor, for some reason, came and took the first one's place. The second physician made a thorough examination of the patient. At the end he said, "Did the other doctor take your temperature?"

"Ah dunno, sah," the patient answered.

"Ah hain't missed nuthin' so fur but mah watch."



Mr. Alfred H. Schlesinger, superintendent of the American Hard Rubber Company's factory at College Point, Long Island, has been forced to retire on account of ill health. Mr. Schlesinger is the son of A. D. Schlesinger, who for many years was superintendent of the same company and one of the pioneers in the hard rubber business. The son made an enviable record as an exceedingly capable and intelligent, and up-to-date manager, and it is sincerely hoped that his enforced vacation will result in the complete upbuilding of his health.

Francis Lynde Stetson, general counsel for the United States Rubber Company, and a member of the board of directors, has been elected chairman of the section on Legal Education of the American Bar Association.

TRADE NEWS NOTES.

The Hartford Rubber Works Company (Hartford, Connecticut) is erecting a new storeroom on the west side of its present buildings.

The National India Rubber Company (Bristol, Rhode Island) recently made a shipment of two carloads of electric cable to the Baltimore and Ohio Railroad. The shipment consisted of 49 drums, and three of them weighed about five tons each, said to be the longest and largest pieces of insulated wire ever made.

The Summit Rubber Company (Barberton, Ohio) recently incorporated, is doubling its manufacturing capacity and very largely increasing its floor space.

W. S. Hathaway, supervisor of the United States Motor Car Company, with his son, G. L. Hathaway, and B. C. Stimson, of the company's Minneapolis branch, has recently made a journey of inspection to the rubber plantations at Port Limon, Costa Rica, with a view to acquiring some rubber growing property, for development in connection with the company's tire business.

The Consolidated Rubber Tire Company (New York) calls its automobile tires the "Kelly-Springfield." That is the name which it has been using for its carriage tire for the past 16 years.

The Electric Storage Battery Company (Philadelphia) has given out a contract for a new building to be 115 x 300 feet and six stories high, with a one-story extension 80 x 120 feet. This building will be constructed in accordance with the Brown patented system of reinforced concrete construction. The company will have very largely increased facilities in its new building.

The Goodyear Tire and Rubber Company (Akron) intends to place \$15,000 insurance on the dirigible transatlantic balloon in which Mr. Vaniman expects soon to start from Atlantic City on a trip across the water.

Carload lots of asbestos have recently been shipped from the chrysotile mines at Lowell, Vermont, to Baltimore.

An electric show, which promises to be important and complete, will be given in Boston next fall, continuing from September 28 to October 26, 1912. It will be held in the Mechanics Building, where the floor space available for exhibitors amounts to 100,000 square feet. This electric show will be under the management of the Edison Electric Illuminating Company, of Boston, though it is not designed by the company to make any financial profits out of it. The intention is rather to give all the electrical manufacturers an opportunity to display their products and to show the world at large what has been achieved in this department. The management hopes to arrange with the New England railroads for excursion rates from every point in New England during the duration of the show.

The Kerite Insulated Wire and Cable Company has acquired the interests of the Watson Insulated Wire Company and has established a Western office in the People's Gas Building, Chicago. The manager of this office will be B. L. Winchell, Jr., formerly vice-president of the Watson company.

Work was resumed in all the departments of the National India Rubber Company (Bristol, Rhode Island) during the last week in August. One of the last to resume was the footwear department, which had been closed for over two months. Shut-downs in this factory, however, have been less frequent and much shorter in duration in the last few years than they were in years gone by, greatly to the satisfaction of the people in Bristol, who look upon the big National plant as their chief mainstay.

Work was resumed in the factory of the Beacon Falls Rubber Shoe Company (Beacon Falls, Connecticut) on September 5. During the previous weeks, while the factory was closed, a new heating apparatus was installed and sundry other repairs were made.

All the employes of the Apsley Rubber Company (Hudson, Massachusetts) went back to work on September 5 on full time, after the summer shutdown.

NEW INCORPORATIONS.

ENDURANCE TIRE AND RUBBER COMPANY, September 12, 1911, under the laws of New York; authorized capital, \$10,000. Incorporators: W. G. H. Randolph, No. 460 Riverside Drive; Edward W. Tabor, No. 134 West Eighty-fifth street, and James E. Bennet, No. 150 Nassau street—all of New York. Location of principal office, New York. To manufacture tires, rubber goods, etc.

Goblet-Dolan Manufacturing Company, September 9, 1911, under the laws of New Jersey; authorized capital, \$60,000. Incorporators: George Staats, No. 252 Lorimer street, Brooklyn, New York; William Goblet, Rosebank, Staten Island, New York, and David J. Dolan, Elizabeth, New Jersey. To manufacture, purchase or otherwise acquire, deal in, sell, hire, lease, etc., machines and articles made wholly or in part of wood, metal, rubber, etc.

Higrade Auto Tire Sales Co., September 21, 1911, under the laws of New York. Authorized capital, \$50,000. Incorporators: A. Forshay, No. 13 Park Place, New York; Helen Neubardt, No. 220 Roebing street, Brooklyn, New York, and Russell Goldman, No. 13 Park Place, New York. Location of principal office, Manhattan. To manufacture auto tires.

Household Rubber Company, August 3, 1911, under the laws of Ohio; authorized capital, \$10,000. Incorporators: D. G. Armstrong, Harry Svenggaard and E. A. Armstrong. The company has been incorporated to deal at wholesale and retail in rubber goods, bicycles, motorcycles, etc. Location of principal office, Youngstown, Ohio.

International Tire and Tube Company, September 7, 1911, under the laws of New York; authorized capital, \$3,000. Incorporators: Robert J. Dunlap, No. 119 Avenue D, Bayonne, New Jersey; Robert F. Randall and Theodore M. Crisp—both of No. 80 Broadway, New York. Location of principal office, New York. To manufacture tires, etc.

Interstate Tire Works, September 2, 1911, under the laws of New York; authorized capital \$5,000. Incorporators: Edward D. Newman, No. 160 Broadway; Stanley Newman and Samuel C. Newman, both of No. 247 West One Hundred and Twenty-seventh street—all of New York. Location of principal office, New York. To manufacture tires and rubber goods.

Lindsay Bros. Company, August 30, 1911, under the laws of New York; authorized capital, \$18,000. Incorporators: Edward A. Quiri, James and John Lindsay—all of Amsterdam, New York. To manufacture leather and rubber goods, shoes, rubbers, etc. Location of principal office, Schenectady, New York.

Metropolitan Rain Coat Company, September 14, 1911, under the laws of New York; authorized capital, \$2,100. Incorporators: Wm. Miller, No. 138 Graham avenue; Alexander Samilow, No. 24 Belydere W, and Solomon Teitelbaum, No. 929½ Lafayette avenue—all of Brooklyn, New York. Location of principal office, Brooklyn. To manufacture rubber clothing, etc.

Moju Rubber Plantations and Development Company, July 10, 1911, under the laws of West Virginia; authorized capital, \$250,000. Incorporators: James H. Hoyt, Gustav von den Steinen and G. W. Cottrell—all of Cleveland, Ohio. The company has been incorporated to harvest rubber, cocoa, vanilla, timber, etc. Colgate Hoyt is president of the company and W. T. C. Carpenter is secretary.

O. & W. Company, August 30, 1911, under the laws of New York; authorized capital, \$100,000. Incorporators: Max C. Overman, Edward Nelson, both of No. 250 West Fifty-fourth street, New York, and Douglas B. Wesson, Long Meadows, Massachusetts. To manufacture tires, rims, etc. Location of principal office, Manhattan.

The Rubber Waste Company, September 8, 1911, under the laws of New York; authorized capital, \$2,000. Incorporators: Gabriel Muchlstein, Julius Muchlstein, both of No. 422 West One Hundred and Twenty-second street, New York, and Alfred Alexander, Rocky Beach. Location of principal office, New York.

Summit Rubber Company, August 11, 1911, under the laws of Ohio; authorized capital, \$50,000. Incorporators: O. C. Dickerhorf, L. J. Johnson, Walter Seiberling and S. D. Brown. To manufacture rubber goods and products and dealing in same. Location of principal office, Barberton, Ohio.

E. A. Wick Rubber Company, August 12, 1911, under the laws of Ohio; authorized capital, \$3,000. Incorporators: Elbridge Ayer Wick, Dudley R. Kennedy and Curtis A. Manchester. The company has been incorporated for the purpose of conducting a store or agency for the buying and selling and dealing in automobile tires and rubber goods and accessories of all kinds. Location of principal office, Youngstown, Ohio.

TRADE NEWS NOTES.

Parker L. Marean, formerly factory superintendent of the Beebe and Richards Rubber Co., North Brookfield, Massachusetts, becomes associated, on October 1, with the Boston Woven Hose and Rubber Co., of Boston, as assistant superintendent of their factory in Cambridge.

The Hope Rubber Co. [Providence, Rhode Island], has leased the premises at No. 241 Thames street, Newport, Rhode Island, for a branch store, to be opened early in October, where a complete line of all kinds of manufactured rubber goods, including automobile tires will be carried. This new Newport store will be in charge of P. W. Saunders, formerly president and manager of the Granite State Rubber Co., Manchester, New Hampshire.

The night shift at the Beacon Falls Rubber Shoe Co., factory, Beacon Falls, Connecticut, recently went out on a strike because their request for certain changes in working conditions was not complied with.

The Republic Rubber Co., Youngstown, Ohio, has established a branch store in San Francisco, at Golden Gate avenue and Hyde street. Other branches are to follow in Los Angeles, Portland and Seattle.

Mr. Charles C. Beebe has withdrawn as treasurer of the B. & R. (Beebe and Richards) Rubber Company, of North Brookfield, Massachusetts, to become manager of the H. H. Brown shoe factory. Mr. Thomas J. Richards, president of the B. & R. company, will have the sole management of the business, taking charge both of the sales and of the manufacturing departments.

A "special" sent to one of the metropolitan dailies states that \$250,000 has been subscribed for a plant in western Texas for extracting from the Candelilla plant, a substance which, it is claimed, is a good substitute for gutta-percha. Inquiry of the United States Department of Agriculture, however, fails to verify this new industry.

The Howe-Baumann Balloon Co., with office and factory at 187-189 Murray street, Newark, New Jersey, has been formed by a combination of stockholders in the Howe Rubber Co., and the Baumann Rubber Co. Balloons will be one of the company's specialties, and Mr. Walter Leatherow, who has had many years' experience in this line, is in charge of this department, which is equipped with all the most improved machinery. The office management will be in charge of Mr. Tenney and Mr. Dodge, of the Howe Rubber Co., and Mr. Lautenbach, of the Baumann Rubber Co., will have the supervision of the selling department.

TRADE NEWS NOTES.

The Boston Woven Hose and Rubber Company (Boston, Massachusetts) paid its regular quarterly dividend of \$2.50 per share on September 15.

The Diamond Rubber Company (Akron, Ohio) has been granted permits for two additional buildings, one large building 114 x 185 feet to be used as a calender room, and the other, a smaller structure, 40 x 180 feet two stories high, to be used for a mill room; both plants to be built of brick and steel.

The Cross & Brown Co. has been appointed agent for the United States Rubber Company building, which is being erected at the southeast corner of Broadway and Fifty-eighth street, New York.

Four new directors—John R. Morron, Charles A. Corliss, Joseph T. Talbert and I. V. McGlone were elected to the board of the Intercontinental Rubber Company on August 16.

The plant of The Derby Rubber Company (Derby, Connecticut) was closed down in August for extensive repairs and improvements. Eight new washers were installed, practically doubling the company's washing capacity, and new conveyors and elevators have also materially increased the capacity of the plant. The factory was reopened early in September with considerably enlarged facilities.

The Diamond Rubber Co. has recently erected a fine building in Houston Texas, especially adapted for the carrying of a large stock of all the rubber goods manufactured by them. The Houston store will have probably as large a stock of tires and mechanical rubber goods as is carried anywhere in the southwest.

George Westinghouse, who has an air-spring device to supplant rubber tires, is also reported to be negotiating for the purchase of a manufacturing site in New York State, when 6,000 men will be employed in manufacturing the new invention.

The Wilson-Goucher Company has opened an automobile tire salesroom in Washington, District of Columbia, at 1705 Fourteenth street. Diamond tires will form the chief stock in trade.

The B. & R. Rubber Company, North Brookfield, Massachusetts, are making notable additions to their plant. The mill room, for example, has been increased by nearly 4,000 square feet. The company are also adding a 500-h.p. engine, three 150-h.p. boilers, several mixing mills and refiners, 15 hydraulic presses for the manufacture of rubber mats, matting and general molded goods. They are also adding two large tubing machines, 10 jar ring cutting lathes and several vulcanizers.

The National Rubber Company, Bristol, R. I., is particularly busy in its insulated cable and druggists' sundries departments. In the latter department, the work is carried on throughout the whole 24 hours.

The report was recently bruited around Wall Street that the Intercontinental Rubber Company was suffering from an overproduction of Guayule rubber. At the company's office, however, this was denied. It was further said that the employees of the company, who had recently been out on a strike, had returned to work and that the mills are being operated at their full capacity.

It is estimated that 90 per cent. of the world's supply of asbestos is taken from the Sherbrooke district, Ontario.

The American Asphalt and Rubber Company, which recently secured a contract for paving certain streets in Grand Rapids, Michigan, has been obliged to suspend work, because of an injunction obtained against them by Warren Brothers, on the ground of infringement.

The United States Tire Company has recently opened branches in Portland, Seattle, Fresno, Los Angeles, Denver and Salt Lake City.

Thomas Taylor & Son, of Hudson, Massachusetts, manufacturers of elastic webbing, expect to build an addition to their factory, 18 x 45 feet, and 4 stories high.

PERSONAL MENTION.

Henry Hornblower, of Hornblower & Weeks, of Boston, a director in the Converse Rubber Shoe Co., was elected, on September 25, to the office of president of the Boston Stock Exchange.

A. Staines Manders, who has been the organization manager



A. STAINES MANDERS.

of the successful international rubber exhibitions that have been held in London, is now in New York with a view to ascertaining the feasibility of holding a rubber exhibition in this country.

B. G. Work, president of the B. F. Goodrich Co., Akron, Ohio, sailed for Europe September 28.

Jose Simao Da Costa, of the Alves Braga Rubber Estates and Trading Co., Pará, recently arrived in New York.



JOSE SIMAO DA COSTA.

Luke S. Stowe, treasurer of the Easthampton Rubber Thread Company (Easthampton, Massachusetts), is a very strong candidate for the republican nomination for the state senate from his district. Mr. Stowe was president of the Easthampton Rubber Thread Company for 10 years, from 1897 to 1907, and has been a director of that company since 1891.

Review of the Crude Rubber Market.

ACTIVITY of demand and the reduced supplies available on account of the strikes, tended to harden London prices during the last days of August, while the fluctuations in the first week of September caused a slight reaction from \$1.16 on August 29 to \$1.13 on September 9. From that point an improvement set in until the equivalent of \$1.20 was reached on September 16. From this point there had been up to September 26 a falling off to the equivalent of \$1.15; a slightly lower figure having meanwhile been reached.

The confidence expressed in some quarters as to the prospective course of the London market, has been due in great measure to the anticipation of renewed buying on account of manufacturers' stocks being low, their purchasing operations having of late been on a limited scale.

At the London plantation rubber auctions of September 5 and 7, there was good competition, but prices of better grades, in harmony with the movement of the market, showed a decline of 2 to 4 cents on the rates of the previous sale of August 24.

While the New York market has been quiet, it has been noted with relative satisfaction that the falling off recorded, barely represents one-third of the average upward improvement recorded since June last.

During the closing week of August, a large business in rubber was transacted in the Hamburg market, on the basis of existing quotations. The principal demand was for Pará descriptions, which to some extent fell off in the succeeding weeks. Special interest was manifested in fine Congo descriptions, and the best medium red grades. About the middle of the month a more active tone again prevailed.

In Antwerp, business has been on a relatively limited scale, on the basis of price established by the August sales. Futures slightly fell off and then improved, but subsequently became quieter.

According to the statistics for August, the stock of rubber in Antwerp was at the end of that month 522 tons, as compared with 537 tons a year previously. Sales in August had been 339 tons, against 407 tons in the corresponding month last year.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago, and August 31—the current date.

PARÁ.	Oct. 1, '10.	Sept. 1, '11.	Sept. 29, '11.
Islands, fine, new.....	155@156	108@109	107@108
Islands, fine, old.....	none here	110@111	109@110
Upriver, fine, new.....	165@166	117@118	113@114
Upriver, fine, old.....	169@170	119@120	115@116
Islands, coarse, new.....	90@91	62@63	61@62
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	122@123	97@98	96@97
Upriver, coarse, old.....	none here	98@99	none here
Cametá.....	90@91	67@68	66@67
Caucho (Peruvian) ball.....	119@120	96@97	98@99
Caucho (Peruvian) sheet.....	none here	none here	none here

PLANTATION PARÁ.			
Fine smoked sheet.....	159@160	138@139	135@136
Fine pale crepe.....	145@146	136@137	133@134
Fine sheets and biscuits.....	142@143	130@131	128@129

CENTRALS.			
Esmeralda, sausage.....	103@104	86@87	87@88
Guayaquil, strip.....	none here	none here	none here
Nicaragua, scrap.....	100@101	84@85	86@87
Panama.....	none here	none here	none here
Mexican, scrap.....	100@101	83@84	86@87
Mexican, slab.....	66@67	none here	none here
Mangabeira, sheet.....	80@81	none here	none here
Guayule.....	74@75	45@46	46@...
Balata, sheet.....	@...	84@85	83@84
Balata, block.....	@...	63@64	58@59

AFRICAN.

Lopori, ball, prime.....	130@131	110@112	111@112
Lopori, strip, prime.....	125@126	none here	none here
Arwimi.....	122@123	102@104	101@102
Upper Congo, ball, red.....	120@121	110@112	110@111
Ikelemba.....	none here	none here	none here
Sierra Leone, 1st quality.....	145@146	92@93	95@96
Massai, red.....	165@166	93@94	96@97
Soudan Niggers.....	115@116	none here	none here
Cameroon, ball.....	73@74	70@71	70@71
Benguela.....	98@99	none here	70@71
Madagascar, pinky.....	none here	83@84	85@86
Accra flake.....	none here	30@31	27@28

EAST INDIAN.

Assam.....	none here	84@85	none here
Pontianak.....	5½@5¾	6½@6¾	6@...
Borneo.....	none here	none here	none here

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine.....	4\$900	Upriver, fine.....	5\$300
Islands, coarse.....	2\$400	Upriver, coarse.....	4\$000
Exchange.....	16 9/32d.		

Latest Manáos advices:

Upriver, fine.....	5\$900	Exchange.....	16 9/32d.
Upriver, coarse.....	4\$000		

NEW YORK PRICES FOR AUGUST (NEW RUBBER.)

	1911.	1910.	1909.
Upriver, fine.....	\$1.09@1.17	\$1.87@2.20	\$1.79@1.95
Upriver, coarse.....	.95@.99	1.40@1.48	1.10@1.20
Islands, fine.....	1.02@1.09	1.78@2.10	1.65@1.84
Islands, coarse.....	.61@.63	.94@.98	.62@.75
Cametá.....	.66@.68	.96@1.10	.80@.92

New York.

IN REGARD to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows: "As reported a month ago, the demand for commercial paper is still decreasing (not increasing as erroneously printed in the September number), and rates are ruling at 5@5¼ per cent. for the best rubber names, and 5½@6 per cent. for those not so well known."

African Rubbers.

NEW YORK STOCKS (IN TONS).

August 1, 1910.....	250	March 1, 1911.....	111
September 1.....	300	April 1.....	98
October 1.....	375	May 1.....	98
November 1.....	100	June 1.....	90
December 1.....	140	July 1.....	90
January 1, 1911.....	115	August 1.....	90
February 1.....	115	September 1.....	112

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—prices paid by consumers for carload lots, per pound—are practically unchanged:

	September 1.	October 1.
Old rubber boots and shoes—domestic	9 @ 9½	9½@9¾
Old rubber boots and shoes—foreign.	9 @ 9½	9 @ 9½
Pneumatic bicycle tires.....	4½@4¾	4½@4¾
Automobile tires.....	8¾@8½	8½@8¾
Solid rubber wagon and carriage tires	9¼@9¾	9¼@9¾
White trimmed rubber.....	11 @ 11½	11 @ 11½
Heavy black rubber.....	4¾@5	4¾@5
Air brake hose.....	4½@4¾	4½@4¾
Garden hose.....	1¾@1½	1¾@1½
Fire and large hose.....	2¾@2½	2 @ 2¾
Matting.....	7½@1	7½@1

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.		Total	Total	Total
	Fine and	Medium. Coarse.			
Stocks, July 31.....	314	71 =	385	209	230
Arrivals, August.....	800	446 =	1,246	702	500
Aggregating	1,114	517 =	1,631	911	730
Deliveries, August.....	815	446 =	1,261	740	574
Stocks, August 31.....	299	71 =	370	171	156

	PARA.			ENGLAND.		
	1911.	1910.	1909.	1911.	1910.	1909.
Stocks, July 31.....	3,450	485	550	1,400	1,140	245
Arrivals, August	1,295	1,460	1,610	465	348	510
Aggregating	4,745	1,945	2,160	1,865	1,488	755
Deliveries, August	1,735	1,360	1,250	555	213	460
Stocks, August 31....	3,010	585	910	1,310	1,275	295

	1911.	1910.	1909.
World's visible supply, August 31.....	5,281	2,473	1,981
Pará receipts July 1 to August 31.....	2,445	2,960	2,700
Pará receipts of caucho, same dates.....	710	1,210	580
Afloat from Pará to United States, August 31	231	229	none
Afloat from Pará to Europe, August 31....	360	215	620

Rubber Stocks at Pará.

During the month of August a further reduction took place in the stock of rubber at Pará; the movement since the beginning of the year having been as follows:

1911.	Tons.	1911.	Tons.
January 31.....	2,085	May 31.....	5,350
February 28.....	3,787	June 30.....	4,545
March 31.....	4,214	July 31.....	3,884
April 30.....	5,104	August 31.....	3,450

A further diminution of stock was expected, until receipts increase later in the year.

Plantation Rubber from the Far East.**EXPORTS OF CEYLON GROWN RUBBER.**

[From January 1 to August 28, 1910 and 1911. Compiled by the Ceylon Chamber of Commerce.]

	1910.	1911.
To Great Britain.....	816,083	1,666,659
To United States.....	718,808	1,161,260
To Belgium.....	26,425	320,072
To Japan .....	.....	33,985
To Australia.....	1,099	24,374
To Germany	10,206	17,418
To Canada	1,911	12,067
To Italy	841	3,597
To Holland .....	.....	1,208
To Austria .....	.....	255
To France .....	.....	117
To India .....	.....	85
Total	1,575,373	3,241,097

[Same period 1909—727,990 pounds; same 1908—447,485.]

TOTAL EXPORTS FROM MALAYA.

(From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.)

FROM—	1909.	1910.	1911.
Singapore (to July 30)....	1,474,849	1,737,117	3,148,720
Penang (to July 24).....	1,470,960	1,096,074	2,471,744
Port Swettenham (to July 7)....	.....	4,069,587	5,994,795
Total	2,945,809	6,902,778	11,615,259

THE RUBBER SEASON OF 1910-11.

THE world's production of rubber for the season 1910-11, as reported in Hecht's statistics, amounted to 79,305 tons, against 76,553 tons for the corresponding period of 1909-10. Consumption seems to have fallen off to some extent; the reduction being from 76,026 tons to 74,082 tons. Stocks at the end of June, 1911 were 12,563 tons, against 6,998 a year earlier.

Arrivals in Europe increased from 44,336 to 45,085 tons, while those in America receded from 33,051 to 30,618 tons.

Deliveries rose in Europe from 42,527 tons to 43,692 tons, while they fell in America from 33,499 tons to 30,390 tons. Hence in America there were reduced receipts of 2,433 tons, against reduced deliveries of 3,109 tons.

Fine Pará quotations are recorded as follows:

End of July, 1910, \$2.10 to \$2.45.

End of January, 1911, \$1.02 to \$1.40.

End of June, 1911, \$0.94 to \$1.08.

Amsterdam.

F. JOOSTEN REPORTS [September 16]:

Our market continued firm with good demand, especially good for fine Rambongs, of which several lots changed hands.

The next sale will take place on September 29, and contains about 36,900 kilos in all, of which there will be about 21,440 kilos Rambongs, 12,150 kilos *Hevea*, 1,320 kilos *Castilloa*, 1,450 kilos Madagascar, and 500 kilos sundries, further 13,900 kilos Sambas and 1,200 kilos paste.

About 6,000 kilos gutta-percha from the government plantations "Tjipetir" per steamer *Rembrandt* will soon be warehoused and will be offered for sale by private treaty.

Liverpool.

WILLIAM WRIGHT & Co. report [September 1]:

Fine Pará.—The market has been firm, but on the whole, quiet, owing to sellers adopting a cautious policy for future delivery. Prices advanced to 4s. 11½d. [\$1.21] for hard fine, but have since reacted to 4s. 9d. [\$1.16]; the undertone is firm, and with small receipts we do not anticipate violent fluctuations. The American market is firm, with a fair demand at our parity; shipments from here to New York are larger than last month. Closing value: Hard fine, 4s. 9d. [\$1.16]; soft, 4s. 6½d. [\$1.10]. Receipts are smaller than corresponding month of last year, being 1,500 tons, including 300 tons caucho, against 1,420 tons last month and 1,870 tons last year, bringing the crop up to date to 3,010 tons, against 4,200 tons last season. Deliveries are 1,284 tons, against 1,116 tons last month, and 499 tons last year, totalling 2,400 tons, against 2,043 tons last season.

Para.

R. O. AHLERS & Co. report [September 4]:

These last few days a firmer tendency has manifested itself owing to freer buying on the part of importers to the United States.

IMPORTS FROM PARA AT NEW YORK.

The Figures Indicate Weight in Pounds.

SEPTEMBER 5.—By the steamer *Justin*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold.....	78,100	19,600	33,700	1,300 =	132,700
A. T. Morse & Co.....	28,400	5,800	32,700	..... =	66,900
New York Commercial Co..	10,700	2,500	25,900	10,600 =	49,700
De Lagottellerie & Co.....	20,300	5,000	16,500	..... =	41,800
Hagemeyer & Brunn.....	12,500	700	1,300	..... =	14,500
General Rubber Co.....	.....	.....	4,500	..... =	4,500
Total	150,000	33,600	114,600	11,900 =	310,100

SEPTEMBER 19.—By the steamer *Minas Gereas*, from Pará:

Poel & Arnold.....	13,000	9,800	65,000	..... =	87,800
De Lagottellerie & Co.....	11,400	1,800	10,600	..... =	23,800
New York Commercial Co..	.....	.....	21,800	..... =	21,800
A. T. Morse & Co.....	11,000	700	3,300	..... =	15,000
Total	35,400	12,300	100,700	..... =	148,400

SEPTEMBER 20.—By the steamer *Polycarp*, from Manáos and Pará:

Poel & Arnold.....	520,000	115,800	174,400	1,500 =	811,700
New York Commercial Co..	185,500	47,300	81,100	11,100 =	324,900
A. T. Morse & Co.....	140,200	14,100	50,200	42,800 =	247,300
Hagemeyer & Brunn.....	26,300	1,100	13,200	..... =	40,600
Henderson & Korn.....	8,600	1,100	5,900	..... =	15,600
De Lagottellerie & Co.....	8,900	1,400	2,000	..... =	12,300
General Rubber Co.....	.....	.....	6,600	..... =	6,600
Total	889,500	180,800	333,300	55,400 =	1,459,000

SEPTEMBER 25.—By the steamer *Goyaz*, from Pará:

Poel & Arnold.....	38,200	2,900	92,400	..... =	133,500
New York Commercial Co..	7,100	1,100	21,800	13,900 =	43,900
Henderson & Korn.....	8,900	.....	10,500	..... =	19,400
Total	54,200	4,000	124,700	13,900 =	196,800

PARA RUBBER VIA EUROPE.

POUNDS.	
August 28.—By the <i>Kaiserin Auguste Victoria</i> —Hamburg:	
Wallace L. Gough Co. (Fine).....	4,500
August 28.—By the <i>Victoria</i> —Bahia:	
General Exp. Comm. Co. (Fine).....	8,500
General Exp. Comm. Co. (Coarse).....	2,200 7,700
August 30.—By the <i>Olympic</i> —Mollendo:	
A. T. Morse & Co. (Fine).....	11,500
A. T. Morse & Co. (Cauchol).....	18,000 29,500
September 5.—By the <i>Cleveland</i> —Hamburg:	
Wallace L. Gough Co. (Fine).....	7,000
September 7.—By the <i>Sarama</i> —Bahia:	
General Exp. Comm. Co. (Fine).....	6,500
General Exp. Comm. Co. (Coarse).....	10,000 16,500
September 7.—By the <i>Zapala</i> —Mollendo:	
N. Y. Commercial Co. (Fine).....	5,000
September 7.—By the <i>Amerika</i> —Hamburg:	
Poel & Arnold (Fine).....	4,500
Raw Products Co. (Coarse).....	1,500 6,000
September 8.—By the <i>Manitania</i> —Liverpool:	
Raw Products Co. (Coarse).....	13,500
Ed. Maurer (Coarse).....	4,500 18,000
September 11.—By the <i>New York</i> —London:	
Poel & Arnold (Coarse).....	15,500
September 12.—By the <i>Bahia</i> —Hamburg:	
Poel & Arnold (Coarse).....	11,500
September 13.—By the <i>Magdalena</i> —Mollendo:	
General Rubber Co. (Cauchol).....	22,500
I. Johnson & Co. (Cauchol).....	4,000
F. Rosenstein & Co. (Fine).....	3,000 29,500
September 15.—By the <i>Baltic</i> —Liverpool:	
General Rubber Co. (Fine).....	11,000
Muller, Schall Co. (Fine).....	7,000
Wallace L. Gough Co. (Fine).....	2,500
General Rubber Co. (Coarse).....	11,500 32,000
September 20.—By the <i>President Lincoln</i> —Hamburg:	
N. Y. Commercial Co. (Fine).....	4,500
N. Y. Commercial Co. (Coarse).....	4,500
Wallace L. Gough Co. (Fine).....	4,500 13,500
September 20.—By the <i>Carman</i> —Liverpool:	
Poel & Arnold (Fine).....	115,000
Poel & Arnold (Coarse).....	11,500
Poel & Arnold (Cauchol).....	45,000
N. Y. Commercial Co. (Fine).....	3,000
Raw Products Co. (Coarse).....	5,000 179,500
September 22.—By the <i>Celtic</i> —Liverpool:	
N. Y. Commercial Co. (Fine).....	60,000
C. P. Santos (Fine).....	11,000
Henderson & Korn (Coarse).....	5,500 76,500
September 23.—By the <i>Campania</i> —Liverpool:	
Poel & Arnold (Fine).....	90,000
September 23.—By the <i>Philadelphia</i> —London:	
Poel & Arnold (Coarse).....	50,000

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]	
POUNDS.	
August 26.—By the <i>El Occidente</i> —Galveston:	
Continental-Mexican Rubber Co.*115,000	
Charles T. Wilson & Co.*11,000	*126,000
August 28.—By the <i>Philadelphia</i> —London:	
Poel & Arnold.....	5,500
August 28.—By the <i>Bayamo</i> —Tampico:	
Ed. Maurer.....	*12,500
Poel & Arnold.....	*27,000
For Europe.....	*150,000 *199,500
August 28.—By the <i>Prinz Sigismund</i> —Colombia:	
A. Angela & Co.....	9,000
G. Amsinck & Co.....	7,000
Scholz & Marturet.....	2,500
J. H. Rossbach & Bros.....	2,000
Roblan & Van Sickle.....	1,000 21,500
August 29.—By the <i>Terence</i> —Bahia:	
J. H. Rossbach & Bros.....	47,000
August 29.—By the <i>El Alba</i> —Galveston:	
Continental-Mexican Rubber Co.....	*85,000
August 30.—By the <i>Panama</i> —Colon:	
G. Amsinck & Co.....	3,500
Piza, Nephews & Co.....	3,000
A. T. Morse & Co.....	3,000
Wessels, Kulenkampff & Co.....	2,000
Gillespie Bros. & Co.....	1,000 12,500

August 31.—By the <i>Mund</i> —Galveston:	
Continental-Mexican Rubber Co.*38,000	
Ed. Maurer.....	*11,000 *49,000
September 1.—By the <i>Union</i> —Colon:	
Isaac Brandon & Bros.....	14,000
G. Amsinck & Co.....	3,000
N. Y. Commercial Co.....	3,000
Pablo Calvet & Co.....	2,500
J. Sambrada & Co.....	1,500
Dumarest Bros. & Co.....	1,000
Lannan & Kent.....	1,000 26,000
September 1.—By the <i>El Oriente</i> —Galveston:	
Continental-Mexican Rubber Co.....	*37,000
September 1.—By the <i>Morro Castle</i> —Frontera:	
Harburger & Stack.....	5,000
A. T. Morse & Co.....	2,500
L. Thompson & Co.....	2,000
G. Amsinck & Co.....	2,500
E. Steiger & Co.....	1,500
Lawrence Import Co.....	1,000 14,500
September 5.—By the <i>Seguranca</i> —Tampico:	
Ed. Maurer.....	*45,000
For Europe.....	*33,000 *79,000
September 6.—By the <i>Voltaire</i> —Bahia:	
A. Hirsch & Co.....	65,000
September 6.—By the <i>Prinz Joachim</i> —Colon:	
G. Amsinck & Co.....	3,500
Mecke & Co.....	2,000
J. Sambrada & Co.....	1,500
Andean Trading Co.....	1,500
Jose Julia & Co.....	1,500
Isaac Brandon & Bros.....	1,000 11,000
September 7.—By the <i>El Norte</i> —Galveston:	
Continental-Mexican Rubber Co.....	*38,000
September 8.—By the <i>Monterey</i> —Vera Cruz:	
I. W. Wilson & Co.....	4,500
E. Nelson Tibbals & Co.....	3,500
H. Stolpner.....	1,500
H. Marquardt & Co.....	1,000
Harburger & Stack.....	1,000 11,500
September 8.—By the <i>El Rio</i> —Galveston:	
Continental-Mexican Rubber Co.*40,000	
Charles T. Wilson.....	*11,500 *51,500
September 9.—By the <i>Comus</i> —New Orleans:	
Manhattan Rubber Mfg. Co.....	3,000
A. T. Morse & Co.....	2,500 5,500
September 9.—By the <i>Matanzas</i> —Tampico:	
Ed. Maurer.....	*67,000
For Europe.....	*90,000 *157,000
September 11.—By the <i>El Sol</i> —Galveston:	
Continental-Mexican Rubber Co.*50,000	
Charles T. Wilson.....	*8,000 *58,000
September 11.—By the <i>Colon</i> —Colon:	
G. Amsinck & Co.....	25,000
Isaac Brandon & Bros.....	3,500
New York Commercial Co.....	3,000
Hirzel, Feltman & Co.....	5,000
American Trading Co.....	4,500
Otto Gerdan.....	4,500
Caballero & Blanco.....	3,500
Jose Julia & Co.....	2,000
Roldan & Van Sickle.....	1,000
United Export Co.....	1,000
Pablo Calvet Co.....	1,000
Dumarest Bros. & Co.....	1,000
Gillespie Bros. & Co.....	1,000 60,500
September 11.—By the <i>Crode</i> —New Orleans:	
A. Rosenthal & Sons.....	4,500
A. T. Morse & Co.....	2,000
W. L. Wadleigh.....	2,500
Robinson & Co.....	2,000
Eggers & Heinlein.....	1,500 12,500
September 12.—By the <i>Bluecher</i> —Hamburg:	
Poel & Arnold.....	33,000
A. T. Morse & Co.....	*7,000 40,000
September 13.—By the <i>Magdalena</i> —Colombia:	
A. M. Capen's Sons.....	9,000
G. Amsinck & Co.....	7,000
Maitland Coppell & Co.....	3,500
R. Castillo & Co.....	2,500
J. Sambrada & Co.....	2,500
Mecke & Co.....	2,000
Kunhardt & Co.....	1,500
Brandon & Bros.....	1,500
Delima Cortisoz & Co.....	1,000
Meyer Hecht.....	1,000
Suzarte & Whitney.....	1,000 32,500
September 13.—By the <i>Asiatic</i> —Bahia:	
J. H. Rossbach & Bros.....	30,000
A. D. Hitch & Co.....	2,000 32,000
September 14.—By the <i>Maestic</i> —London:	
Poel & Arnold.....	33,500

September 15.—By the <i>Mexico</i> —Frontera:	
Harburger & Stack.....	6,500
H. Marquardt & Co.....	5,500
E. Steiger & Co.....	2,500
Willard Hawes & Co.....	1,500
Herman Klugge.....	1,000 17,000
September 18.—By the <i>Lusitania</i> —Liverpool:	
George A. Alden & Co.....	15,500
September 18.—By the <i>Esplanada</i> —Tampico:	
Ed. Maurer.....	*95,000
For Europe.....	*9,000 *104,000
September 18.—By the <i>Albion</i> —Colombia:	
A. Angelo & Co.....	4,500
Heilbron Wolf & Co.....	2,000
G. Amsinck & Co.....	2,000
Iglesias Lobo & Co.....	2,000
A. Helde.....	1,500
Caballero & Blanco.....	1,000 13,000
September 19.—By the <i>El Alba</i> —Galveston:	
Continental-Mexican Rubber Co.*210,000	
Charles T. Wilson.....	*15,000 *225,000
September 21.—By the <i>Prinz August Wilhelm</i> —Colombia:	
G. Amsinck & Co.....	7,500
Graham Hinkley & Co.....	2,000
Suzarte & Whitney.....	1,000
Isaac Brandon & Bros.....	2,000 12,500
September 23.—By the <i>Panama</i> —Colon:	
G. Amsinck & Co.....	11,500
Isaac Brandon & Bros.....	9,000
New York Commercial Co.....	5,000
Geo. A. Alden & Co.....	3,500
Piza, Nephews & Co.....	2,500
L. Johnson & Co.....	2,000
Dumarest Bros.....	1,500
Pablo Calvet Co.....	1,000 36,500
September 25.—By the <i>Antilles</i> —Tampico:	
Ed. Maurer.....	*125,000
New York Commercial Co.....	*130,000
J. W. Wilson Co.....	*5,000 *260,000
September 25.—By the <i>Tennyson</i> —Bahia:	
J. H. Rossbach & Bros.....	33,000
AFRICAN.	
POUNDS.	
August 28.—By the <i>Kaiserin Auguste Victoria</i> —Hamburg:	
A. T. Morse & Co.....	33,500
Rubber Trading Co.....	5,500
Wallace L. Gough Co.....	3,500 42,500
August 28.—By the <i>Espagne</i> —Havre:	
Muller, Schall & Co.....	11,500
August 28.—By the <i>Philadelphia</i> —London:	
A. T. Morse & Co.....	18,000
Poel & Arnold.....	5,500
Rubber Trading Co.....	3,500 27,000
August 29.—By the <i>Vaderland</i> —Antwerp:	
Poel & Arnold.....	30,000
Muller, Schall & Co.....	2,000 32,000
August 29.—By the <i>Chicago</i> —Havre:	
General Rubber Co.....	11,000
September 5.—By the <i>Lapland</i> —Antwerp:	
Poel & Arnold.....	15,500
Rubber Trading Co.....	5,500 21,000
September 5.—By the <i>Cleveland</i> —Hamburg:	
George A. Alden & Co.....	11,500
Poel & Arnold.....	9,000
Rubber Trading Co.....	15,000
Wallace L. Gough Co.....	5,500
F. Rosenstein & Co.....	6,500
Raw Products Co.....	2,000 49,500
September 6.—By the <i>Olympic</i> —London:	
George A. Alden & Co.....	11,500
Raw Products Co.....	2,500 14,000
September 7.—By the <i>Amerika</i> —Hamburg:	
Wallace L. Gough Co.....	15,000
A. T. Morse & Co.....	11,000
George A. Alden & Co.....	11,500
General Rubber Co.....	6,500
Raw Products Co.....	5,500
Rubber Trading Co.....	4,500
Robert Badenhop.....	2,300 56,300
September 9.—By the <i>Carmania</i> —Liverpool:	
General Rubber Co.....	13,500
September 12.—By the <i>Kroonland</i> —Antwerp:	
George A. Alden & Co.....	177,000
A. T. Morse & Co.....	26,000
Muller, Schall & Co.....	22,500
Poel & Arnold.....	13,500
Rubber Trading Co.....	2,500
In Transit.....	33,500 275,000

SEPTEMBER 12.—By the <i>Blucher</i> =Hamburg:		
George A. Alden & Co.	150,000	
Poel & Arnold.	135,000	
A. T. Morse & Co.	13,500	
Wallace L. Gough Co.	4,500	
Raw Products Co.	5,500	
Robert Badenhop	1,900	310,400

SEPTEMBER 13.—By the <i>Bretagne</i> =Havre:		
Poel & Arnold.	135,000	

SEPTEMBER 14.—By the <i>Majestic</i> =London:		
A. T. Morse & Co.	33,500	
Rubber Trading Co.	5,500	
General Rubber Co.	3,500	42,500

SEPTEMBER 15.—By the <i>Baltic</i> =Liverpool:		
Poel & Arnold.	67,000	
A. T. Morse & Co.	22,500	
George A. Alden & Co.	22,500	
James T. Johnstone.	22,500	
Robinson & Co.	11,000	
Ed. Maurer	15,000	
William H. Stiles.	9,000	
Raw Products Co.	4,500	174,000

SEPTEMBER 18.—By the <i>Cincinnati</i> =Hamburg:		
A. T. Morse & Co.	9,000	
Rubber Trading Co.	4,500	
Robert Badenhop.	7,000	
General Rubber Co.	2,500	23,000

SEPTEMBER 20.—By the <i>Caronia</i> =Liverpool:		
Poel & Arnold.	55,000	
A. T. Morse & Co.	15,500	
Henderson & Korn.	13,500	
William H. Stiles & Co.	9,000	
Raw Products Co.	4,500	
George A. Alden & Co.	4,500	
Robert Badenhop	2,050	104,050

SEPTEMBER 20.—By the <i>President Lincoln</i> =Hamburg:		
George A. Alden & Co.	100,000	
Poel & Arnold.	15,000	
A. T. Morse & Co.	4,500	
Rubber Trading Co.	5,000	
Robert Badenhop	4,500	129,000

SEPTEMBER 22.—By the <i>Celtic</i> =Liverpool:		
James T. Johnstone.	7,000	

SEPTEMBER 22.—By the <i>Kaiserin-Auguste Victoria</i> =Hamburg:		
George A. Alden & Co.	25,000	
A. T. Morse & Co.	40,000	
Poel & Arnold.	11,500	76,500

SEPTEMBER 23.—By the <i>Campania</i> =Liverpool:		
Wallace L. Gough Co.	25,000	
Poel & Arnold.	13,500	
George A. Alden & Co.	7,000	
General Rubber Co.	7,000	
Robert Badenhop.	11,300	63,800

[*Denotes plantation rubber.]

POUNDS.

EAST INDIAN.

AUGUST 28.—By the <i>Philadelphia</i> =London:		
New York Commercial Co.	*15,000	
In transit	*22,500	*37,500

AUGUST 30.—By the <i>Oceanic</i> =London:		
Poel & Arnold.	*56,000	
Ed. Maurer	*47,000	
A. T. Morse & Co.	*9,000	
William H. Stiles.	*20,000	
James T. Johnstone.	*4,500	
Muller, Schall & Co.	*4,500	
In transit	*65,000	*206,000

SEPTEMBER 5.—By the <i>St. Louis</i> =London:		
New York Commercial Co.	*15,000	
Poel & Arnold	*79,000	
Manhattan Rubber Mfg. Co.	*5,500	*99,500

SEPTEMBER 5.—By the <i>Lapland</i> =Antwerp:		
A. T. Morse & Co.	*24,000	

SEPTEMBER 5.—By the <i>Kansas</i> =Colombo:		
A. T. Morse & Co.	*46,000	
Thomsen & Co.	*3,000	*49,000

SEPTEMBER 6.—By the <i>Olympic</i> =London:		
Poel & Arnold.	*33,500	
A. T. Morse & Co.	*25,000	
New York Commercial Co.	*50,000	
Ed. Maurer	*7,500	
Robinson & Co.	10,000	126,000

SEPTEMBER 8.—By the <i>Mesba</i> =London:		
A. T. Morse & Co.	*34,000	
Ed. Maurer	*11,500	
Charles T. Wilson.	*3,000	
C. P. dos Santos.	22,500	
Robinson & Co.	9,000	80,000

SEPTEMBER 11.—By the <i>Minnehaha</i> =London:		
General Rubber Co.	*55,000	
Poel & Arnold	*30,000	
A. T. Morse & Co.	*22,500	
Ed. Maurer	*20,000	
James T. Johnstone.	43,500	
Charles T. Wilson.	*2,500	
Wallace L. Gough Co.	7,000	140,500

SEPTEMBER 11.—By the <i>Pathan</i> =Singapore:		
Ed. Maurer	20,000	
Otto Isenstein & Co.	4,500	
L. Littlejohn & Co.	4,500	29,000

SEPTEMBER 11.—By the <i>New York</i> =London:		
Poel & Arnold.	*45,000	
New York Commercial Co.	*13,500	
Ed. Maurer	*3,500	
Poel & Arnold	55,000	117,000

SEPTEMBER 12.—By the <i>Kroonland</i> =Antwerp:		
New York Commercial Co.	*65,000	

SEPTEMBER 14.—By the <i>Majestic</i> =London:		
Poel & Arnold	*34,000	
Poel & Arnold.	22,500	56,500

SEPTEMBER 15.—By the <i>Lovate</i> =Singapore:		
Ed. Maurer	*20,000	
A. W. Brunn	*15,000	
Otto Isenstein & Co.	20,000	
Heabler & Co.	22,500	
Poel & Arnold.	11,500	
Manhattan Rubber Mfg. Co.	13,500	
L. Littlejohn & Co.	11,500	113,000

SEPTEMBER 16.—By the <i>Uhenfels</i> =Colombo:		
A. T. Morse & Co.	*70,000	
Poel & Arnold.	*10,000	
New York Commercial Co.	*7,000	
Ed. Maurer	*5,000	
Muller, Schall & Co.	*3,500	
Thomsen & Co.	*2,500	
George A. Alden & Co.	4,500	102,500

SEPTEMBER 18.—By the <i>Minnewaska</i> =London:		
Poel & Arnold.	*55,000	
A. T. Morse & Co.	*13,500	
Charles T. Wilson.	*11,000	
James T. Johnstone.	*5,500	
Ed. Maurer	*4,500	
Wallace L. Gough Co.	9,000	98,500

SEPTEMBER 19.—By the <i>Finland</i> =Antwerp:		
A. T. Morse & Co.	*3,500	
Robert Badenhop	*3,500	*7,000

SEPTEMBER 19.—By the <i>Niagara</i> =Havre:		
Poel & Arnold	*6,500	

SEPTEMBER 20.—By the <i>Oceanic</i> =London:		
Poel & Arnold.	*25,000	
In transit	*22,500	*47,500

SEPTEMBER 20.—By the <i>Caronia</i> =Liverpool:		
William H. Stiles.	*11,500	

SEPTEMBER 23.—By the <i>Philadelphia</i> =London:		
Poel & Arnold.	*22,500	
New York Commercial Co.	*22,500	
Rubber Trading Co.	*7,000	
Poel & Arnold.	15,000	67,000

SEPTEMBER 25.—By the <i>Cloemfontein</i> =Colombo:		
A. T. Morse & Co.	*70,000	
New York Commercial Co.	*55,000	
G. Amsinck & Co.	*7,000	
Poel & Arnold.	*5,000	*137,000

GUTTA-JELUTONG.

SEPTEMBER 11.—By the <i>Pathan</i> =Singapore:		
L. Littlejohn & Co.	325,000	
Haebler & Co.	55,000	
George A. Alden & Co.	50,000	430,000

SEPTEMBER 15.—By the <i>Lovate</i> =Singapore:		
Haebler & Co.	250,000	
L. Littlejohn & Co.	265,000	
Wallace L. Gough Co.	150,000	
Poel & Arnold.	55,000	720,000

GUTTA-PERCHA.

SEPTEMBER 20.—By the <i>President Grant</i> =Hamburg:		
Robert Soltau & Co.	11,000	

BALATA.

AUGUST 28.—By the <i>Navarre</i> =Trinidad:		
American Trading Co.	13,500	
Ed. Maurer	11,500	
Middleton & Co.	9,000	34,000

SEPTEMBER 7.—By the <i>Saramaca</i> =Bolívar:		
G. Amsinck & Co.	11,500	
Ed. Maurer	5,500	
Middleton & Co.	2,500	
Iglesias Lobo & Co.	2,500	
For Europe	22,500	44,500

SEPTEMBER 11.—By the <i>Guiana</i> =Demerara:		
Middleton & Co.	30,000	
Ed. Maurer	8,000	
American Trading Co.	5,000	
George A. Alden & Co.	2,500	45,500

SEPTEMBER 15.—By the <i>Grenada</i> =Demerara:		
American Trading Co.	22,500	
Ed. Maurer	11,000	33,500

SEPTEMBER 20.—By the <i>Coppename</i> =Demerara:		
Middleton & Co.	11,500	
Ed. Maurer	11,000	
G. Amsinck & Co.	9,000	
General Export Comm. Co.	2,000	33,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK.—AUGUST.

Imports:	Pounds.	Value.
India-rubber	6,409,227	\$5,344,973
Balata	231,120	156,677
Guayule	600,227	238,324
Gutta-percha	67,114	7,925
Gutta-Jelutong (Pontianak)	3,409,556	164,266
Total	10,717,244	\$5,912,165

Exports:	Pounds.	Value.
India-rubber	111,383	\$90,001
Balata	.....	.....
Guayule	2,247	890
Gutta-percha	.....	.....
Reclaimed rubber	72,760	12,132
Rubber scrap, imported	1,759,345	\$114,453
Rubber scrap, exported	211,113	25,805

BOSTON ARRIVALS.

		POUNDS.
AUGUST 17.—By the <i>Indra</i> =Singapore:		
State Rubber Co. (Jelutong)	550,000	
L. Littlejohn & Co. (Jelutong)	350,000	
Wallace L. Gough Co. (Jelutong)	150,000	
State Rubber Co. (Ceylon)	11,000	1,061,000

PARA IMPORTS OF INDIA-RUBBER, JULY, 1911 (IN KILOGRAMS).

NEW YORK.

EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.
Gruner & Co.	120,161	21,582	176,804	54,227	372,774
Ad. H. Alden, Limited.	18,187	8,179	45,460	37,290	109,116
Gordon & Co.	19,589	3,662	36,287	224	59,762
De Lagotellerie & Co.	21,590	5,610	32,340	.....	59,540
Suarez Hermanos & Co., Ltd.	.....	.....	.....	.....	20,233
Pires Teixeira & Co.	6,120	.....	990	.....	10,370
J. Marques	13,150	2,234	2,604	238	18,226
R. O. Ahlers & Co.	.....	.....	.....	.....	1,538
Nunes Sobrinho & Co.	.....	.....	5,280	.....	5,280
Sundries	.....	.....	.....	.....	31,450
Manãos, direct	95,415	21,598	47,365	122,288	286,666
Iquitos, direct	.....	.....	.....	.....	31,792

EUROPE.

Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
25,105	14,020	149,893	398,984	599,843	771,758
18,530	18,935	52,500	166,805	96,127	275,921
5,873	11,244	12,449	69,442	103,983	129,204
.....	7,590	18,150	52,940	335,317	112,480
.....	2,973	1,742	26,548	1,135,270	26,548
.....	5,280	.....	15,650	2,053,744	22,760
.....	.....	3,647	5,724	.....	18,226
.....	.....	.....	5,280	.....	5,280
.....	.....	3,462	38,292	.....	38,292
.....	34,987	38,862	52,701	.....	563,794
.....	5,279	2,451	83,757	.....	83,757

Total, July, 1911..... 294,212 62,865 347,130 214,267 918,474 599,843 96,127 103,983 335,317 1,135,270 2,053,744



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OCTOBER 1, 1911.

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Antwerp.

RUBBER STATISTICS FOR AUGUST.

DETAILS.	1911.	1910.	1909.	1908.	1907.
Stocks, July 31.....kilos	465,734	519,965	524,512	695,551	931,356
Arrivals in August.....	396,141	423,246	429,760	640,712	309,667
Congo sorts.....	299,703	338,797	147,313	522,847	232,522
Other sorts.....	96,438	84,449	81,947	117,865	77,145
Aggregating.....	861,875	943,211	753,772	1,336,263	1,241,023
Sales in August.....	339,474	406,651	508,921	461,749	500,509
Stocks, August 31.....	522,401	536,560	244,851	874,514	740,514
Arrivals since January 1.....	2,880,214	2,758,353	3,162,684	3,473,730	3,501,465
Congo sorts.....	2,140,816	2,139,120	2,325,028	2,953,211	2,986,244
Other sorts.....	739,398	619,233	837,656	520,528	515,221
Sales since January 1.....	2,946,025	2,763,303	3,513,568	3,606,119	3,419,135

RUBBER ARRIVALS FROM THE CONGO.

AUGUST 23. -By the steamer *Leopoldville*.

Bunge & Co.....(Société Générale Africaine) kilos	48,500
do.....(Chemins de fer Grands Laes)	5,300
do.....(Société Abir)	700
do.....(Comité Spécial Katanga)	295
Société Coloniale Anversoise.....(Belge du Haut Congo)	6,300
do.....(Cie. du Kasai)	87,000
do.....(Cie. franc du Haut Congo)	6,600
do.....(Cie. du Lomami)	875
L. & W. Van de Velde.....	4,000
Charles Dethier.....(American Congo Co.)	2,000
do.....	1,900
Cassart & Henrion.....	650
Comptoir d'Irebu.....	200
	164,320

SEPTEMBER 14.—By the steamer *Bruxellesville*.

Bunge & Co.....(Société Générale Africaine) kilos	89,800
do.....(Intertrop. Anglo Belg. Trading Co.)	1,000
do.....(Chemins de fer Grands Laes)	350
do.....(Alberta)	150
do.....(Comptoir Commercial Congolais)	16,000
do.....(Comité Spécial Katanga)	1,000
do.....(Société Abir)	450
Société Coloniale Anversoise.....(Belge du Haut Congo)	250
do.....(Cie. franc du Haut Congo)	3,700
do.....(Sud. Cameroon)	17,100
L. & W. Van de Velde.....	10,000
do.....(Société Comm. and Financ. Africaine)	101,000
do.....(Cie. du Kasai)	3,500
Congo Trading Co.....	1,200
Willart Freres.....	245,500

28 FACTORIES FOR SALE

or lease. All the plants here mentioned are in good condition and ready for use. Each having some special advantage for some particular line of business and all well located as regards shipping facilities, labor conditions, water, fuel, steam, electric or water power, good homes for workmen, etc., and can be had at lower prices, with terms to suit, and illustrated circulars with full particulars will be sent to parties interested.

Richmond, Ind., 60,000 sq. ft.; Altoona, Pa., 23,000; Rome, N. Y., 75,000; Rockville, Conn., (near Hartford), 50,000; Patterson, N. Y., (Putnam County), 20,000; Hoboken, N. J., 40,000; Hoboken, N. Y., 27,000; Brooklyn, N. Y., 37,000; Vine-land, N. J., 10,000; Newark, (Soho Park), N. J., 55,000; Thomaston, Conn., (near Waterbury), 14,000; Meriden, Conn., 130,000; Shelton, Conn., (near New Haven), 60,000; Great Barrington, Mass., 35,000; Mamaroneck, N. Y., 25,000; Bridgeport, Conn., 20,000; Jersey City, N. J., 50,000; Newark, N. J., (water front), 100,000; New York, (Bronx), 70,000; New York, (Bronx), 30,000; Schaghticoke, N. Y., (near Albany), 100,000; South Egremont, Mass., (Berkshire Co.), 20,000; Lockport, N. Y., 70,000; Philadelphia, Pa., 85,000; Baltimore, Md., 40,000; Dayton, Ohio, 100,000; Pennington, N. J., 30,000; Evansville, Ind., 100,000; Oil City, Pa., 25,000 sq. ft.

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CAOUTCHOUC

HEVEA BRASILIENSIS

DIORPUS GUTTA

GUTTA-PERCHA

Edited by HENRY C. PEARSON—Offices, No. 15 West 38th Street, NEW YORK.

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NOVEMBER 1, 1911.

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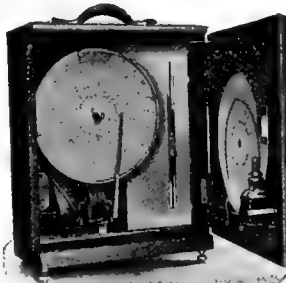
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THE AMERICAN RUBBER EXHIBITION.

MANY times has the project for an American rubber exhibition been mooted. A score of times has it been suggested, but never carried beyond the first preliminaries. That is as it should be, for certainly up to the present the time was not ripe, nor was there adequate exhibition experience behind the thought. With the projected 1912 exhibition, however, the case would seem to be vastly different. At no time in the past has there been such a general interest in rubber. Nor has there ever been so wonderful and spectacular a trade development. The tropical world has been scoured to secure varieties hitherto unknown of wild rubber. Not only that, but science has gone out into the jungle and taught the native to do his work better, and give a cleaner, more valuable product. Law has penetrated to fever-ridden fastnesses and insisted upon sanitation and incidentally conservation of rubber-producing species. New appliances for gathering, for coagulation, have been produced by the hundred.

In the great factories of the world, in foundry, machine shop and laboratory, new machines and appliances have appeared by the thousand. American, German, English, French, Belgian and Russian inventors have been busy. Scientists in Government service or privately employed have spent years in rubber research, and are eager to put their views before the world.

The time is ripe. A gathering such as no other industry in the world could call out is perfectly feasible. A rubber exhibition, historical, broadly informing, complete, held in the United States would not only be of the greatest value to the people, but could be made to give an added and a permanent impetus to the already great industry that we have builded.

ARE THESE TRUSTS SO BAD?

IT is reported by the press that Attorney General Wickersham has compiled a list of 100 "bad trusts," and this list, as given conjecturally by one of the dailies, includes the United States Rubber Co. and the Intercontinental Rubber Co.

Just why the rubber trusts should be listed as "bad" it is hard to imagine. They certainly do not monopolize any branch of the rubber trade nor apparently do they attempt to do so. As a rule instead of stifling competition they have encouraged it—in rubber shoes, for example, by putting prices where it was possible for the new man to make a good profit.

As a result of the amalgamation or trust impulse that began to show itself about 20 years ago there have been consolidated about 30 companies. During that period 25 have started up as a direct result of such consolidation, and as many more because of the natural expansion of the rubber business. In the meantime the rubber business has grown from \$100,000,000 to over \$200,000,000 and the trusts have done not over 40 per cent. of it. Certainly the rubber trade has no cause for complaint.

In the popular mind the Intercontinental Rubber Co. would probably be classed as a "trust" as it is a merger of several other companies. It was formed in December, 1906, and its chief operations have had to do with the extraction of rubber from the guayule plant in Mexico. Since the beginning of 1907 over 55,000,000 pounds of guayule rubber, with a value of nearly \$25,000,000, have been exported from that country. Fully 45 per cent. of this large output can be credited to the Intercontinental Rubber Co. During the past four years, therefore, it has added some 25-

000,000 pounds of rubber to the world's supply; and that without harm or menace to anybody. Nobody pressed to the wall, no competitor crushed, either large or small; in fact nothing crushed but a hitherto worthless weed, and over \$10,000,000 extracted from it to add to the general wealth of mankind. Not a particularly flagrant record.

Incidentally it might be added that during these past three or four years the company has enriched its stockholders to the extent of over a million and a half of dollars.

PARA RUBBER IN COVENTRY.

ACCORDING to accepted theory, Pará rubber, being the Caoutchouc unit of value, sets the price for all other sorts. If Pará be high the prices of all of the lower sorts go up, if low they go down. In the past this has been uniformly true, the exceptions being some kinds such as pinky Madagascar, used for certain goods where Pará does not give as good a result.

Within the last four months there has, however, been the curious spectacle of Pará going down and the less valuable kinds either remaining as they were or showing a slight rise. In some cases these poorer sorts seem to be selling at a price that their value in comparison with Pará does not justify. For example, in 1908 the difference in price between Fine Pará and Benguelas was 52 cents; today it is only 43 cents. Or to cite a still more striking case: in 1908 the difference between Fine Pará and Caucho Ball was 35 cents; today it is 14 cents.

There is but one possible explanation. The rubber manufacturers of the world, having been once forced to pay \$3 for Pará rubber and being again threatened by high prices through corners, valorization, etc., are using other rubbers in preference even at a slightly greater cost, proving that, were the Amazonian output greatly restricted, or even shut off, the rubber factories could still run.

200 POUNDS OF SYNTHETIC RUBBER DAILY.

A VERY good friend of ours writes a somewhat caustic letter criticising the position that THE INDIA RUBBER WORLD has taken that synthetic rubber is an accomplished fact. His own belief seems to be that for many years to come synthetic rubber will not be made even in 50 pound lots, and that within the present generation it will not be used commercially even on a very small scale.

Our friend is certainly entitled to his own opinion and we wish it were as valuable as he seems to believe it to be. The facts, however, are really against him. A prominent European manufacturer—one in whose knowledge and integrity we have every confidence—who is thoroughly familiar with synthetic rubber as it is now produced, recently told us of a European firm that is actually making something like 200 pounds a day and selling it to a well-known rubber manufacturing concern for use in mechanical rubber goods. The rubber is sold at 62 cents a pound and usually gives satisfaction. It did happen, however, that certain lots for some reason or other did not vulcanize, although such failures were only occasional.

The product is described as being almost pure white in color, quite odoriferous, and exhibiting a tendency to oxidize in the course of two or three months.

The fact that such a production is going on need not alarm either rubber manufacturers or rubber planters. It will be a long time before a very large product is reached no matter how successful the producers may be. It is, however, exceedingly interesting, and will eventually, in all probability, prove of great value to the whole trade.

RUBBER IS GROWING POPULAR.

THAT there is a very widespread interest in rubber, and that it is increasing, no one at all alive to the signs of the times can fail to appreciate. The daily newspapers print far more than they did a year ago concerning rubber, and if they call it gutta percha, melt it, or get terms mixed, it in no way obscures the fact that they are trying to give their readers what they want. Short story writers in the Sunday papers and in the monthly periodicals use the rubber hunter, the plantation boomer and the factory manager as heroes for their thrilling tales. The fact that the writers do not know rubber either in the jungle or in the mill only adds to the unconscious humor of their efforts. Several novels center about rubber camps. In one the hero carries off \$1,000,000 worth of Fine Pará while cannibals are holding a feast in a neighboring thicket. A powerful man was that hero—but, then, they usually are.

Perhaps the most interesting phase of the general wish to know more about gum elastic is shown by pedagogues. A great majority of the schools in the United States and doubtless the world over are on the hunt for rubber information. They besiege editors, manufacturers, stores,

for photographs, samples and knowledge, and it is well that it is so, for there lies the possibility that the next generation may understand the rudiments of rubber as well as they do of steel, paper or any of the important factors of modern industry.

A BRITISH CRITICISM OF PIECE WORK.

THE "India Rubber Journal" prints a long letter from an official in the "Amalgamated Society of India Rubber Works" of Manchester, England, criticising the piece work system in vogue in rubber factories in the United States. It is in fact, an attempt to answer an article published in THE INDIA RUBBER WORLD, August 1, 1911, entitled, "Piece Work and Bonus Payment in Rubber Mills."

One point made is that the whole American idea seems to be to "hustle," which vexes the writer's soul. He says: "We, as workers, claim the right of collectively saying at what price we are prepared to sell our only commodity, 'labor power.'" That is perfectly correct. No fair man denies it. Piece work is all based upon labor power. One man possesses more than another however, and therefore has more to sell. He has the right to sell it all, even if another does not possess quite as much. The man with the capacity to do two days' work in one will never be willing to come down to the wage of the man who can barely do his day's work. Nor should his associates ask it of him. Man, laborer or capitalist, is or should be a free agent. He should be able to sell his labor for what it is worth unhampered by anyone. Between the grind of corporations and the tyranny of labor organizations, the laborer certainly has a hard time. His only hope is to "hustle" and get a bit ahead, and thus, in a measure, be free from both.

CAN RETAILERS SUCCEED AS MANUFACTURERS.

AT the convention of the Ohio Retail Shoe Dealers' Association, recently held in Cincinnati, where considerable time was devoted to the discussion of the prevailing level of footwear prices,—which in the opinion of the members of that convention are unduly high,—a committee was appointed with instructions to formulate plans whereby the association could get a "square deal" from the manufacturers. The chairman of this committee, who is also vice president of the association, gave out the statement,—as reported in another column by our Cincinnati correspondent,—that "the association will either finance a company

for the manufacture of rubber footwear or have the entire association combine and make its purchases in immense quantities to secure a reduction in prices and then distribute to the retail dealers."

It is hardly likely that the Ohio retailers will permit their disapprobation of the present price situation to go so far as to make any very substantial subscription towards the building and equipping of a rubber footwear plant. Resolutions of displeasure are one thing and hard cash advances for a manufacturing venture quite another. The sad experience in the past of many rubber footwear enterprises that started with rosy prospects and considerable cash in hand shows that a certain amount of paid-in capital is not all that is needed to insure the successful manufacture of rubber boots and shoes.

The alternative plan suggested by the committee under which the retailers of that state should pool their purchases appears rather more feasible, as this requires simply organized coöperation and mutual confidence and not any considerable financial advance. If it should be put into practice and adopted by other local retailing associations, the jobbers and sales departments of the manufacturing concerns would have a new and interesting situation to deal with.

PATIENT STOCKHOLDERS GET THEIR REWARD.

PATIENCE stands so high among the virtues that there is a universal feeling that it should be entitled to its due reward. This feeling finds expression in the accepted adage that "all things come round to him who will but wait."

The directors of the United States Rubber Co. at their meeting on October 5 gave substantial proof—if any were needed—of the trustworthiness of this ancient proverb, when they declared a dividend on the common stock of that company. The last dividend on this stock was paid in April, 1900, eleven and a half years ago. Forty-six times since then have the quarterly periods rolled around, when dividends might have been paid, but were not; yet the holder of this common stock has kept a stout heart and hoped on with a hope so buoyant that during this barren period the stock has ranged much of the time over \$30 a share, has remained for many consecutive months at over \$40, has made periodical and protracted excursions across the \$50 line and once came within half a point of \$60. At last these patient waiters have come into their reward, at least to the extent of the 1 per cent., just paid.

Since its formation in 1892 the United States Rubber Co. has paid in dividends on its various shares close to \$34,000,000. It has paid 122 per cent. on its preferred stock. It began in 1893 with 4 per cent., raised this to $9\frac{1}{3}$ per cent. in 1894, and has paid 8 per cent. every year since except in 1897, when it paid 6 per cent.; in 1901, when it dropped to 1 per cent.; the two following years, when it passed altogether; 1904, when it resumed by paying $4\frac{1}{2}$ per cent., and 1905, when it paid 9 per cent. Its average for the past 18 years is 7 per cent.

It began paying on the second preferred stock in October, 1905, and has maintained a 6 per cent. rate ever since. But its common stock has had a leaner career. On this stock the company started off with the payment of $2\frac{1}{2}$ per cent. in 1895, followed by 2 per cent. in 1897, which was repeated in 1899 and 1900, from which time there was a hiatus until the payment just made. This stock has received in 18 years a total of $9\frac{1}{2}$ per cent., or an average of $\frac{1}{2}$ per cent. a year.

The preferred stock, with an average dividend of 7 per cent., is certainly not selling inordinately high at its present figure of about 108. The second preferred, selling close to 75, which puts it on an 8 per cent. basis, holds about the proper logical relation to the first preferred, but the common selling at over 40 on a payment of $9\frac{1}{2}$ per cent. in 18 years shows that its holders are following that admirable motto, "Look forward, not back," as evidently their eyes are on the future rather than on the past.

A BIG SNAKE STORY EXPLAINED.

ALLOT LANGE is not only a writer and lecturer on rubber, but a narrator of thrilling adventure. He had an account in the New York Sunday "Herald" of October 8, of his encounter with a boa constrictor in the Amazon country. "The snake," he writes, "was coiled up, forming an enormous mass of round, scaly monstrosity, large enough to crush us all to death at once. We stopped at a distance of about fifteen feet and looked at each other and, strange to say, I felt as if I was spellbound, unable to move any further or even to think or act." However, he managed to bring his automatic Luger pistol into play, and his six Indian guides blazed away with their .44 Winchester, and the reptile was slowly and painfully devitalized. Then he was smoothed out and duly measured. "I proceeded to take my measurements and used the span between my thumb and my little finger as a unit, knowing that this was exactly eight

inches. Beginning at the mouth of the snake I continued to the end of the tail, and found a total length of fifty-eight feet four inches." In order to silence forever any shallow carper he verified his calculations. "I took this measure from the tail to the nose over again, so as to eliminate any errors, whereupon I asked the men who were with me to take the measurements in their manner, only confirming the above mentioned figures."

W. T. Hornaday, director of the New York Zoological Museum, commenting on this reptile remarks: "Thus far I have not been able to obtain the definite record for either anaconda or python, measured by careful and competent hands, that exceeded 25 feet," but he thinks one possibly might attain to 30 feet.

But Mr. Lange's 58-feet-4-inch boa is easily accounted for. He was in the heart of the rubber country; the day was hot and the snake was dry. Coming upon a fine specimen of *Hevea Brasiliensis* with the rich, fresh milk pouring out from a recent tapping he imbibed freely and joyously. The heat of the tropical sun and the sulphur of his natural disposition combined to vulcanize the latex as it entered his system. The result—an elasticity like that of the rubber band in a boy's bean-shooter! Mr. Lange and his six Indians easily stretched him out to 58 feet 4 inches. If there had been twelve Indians they could undoubtedly have stretched him out to 116 feet 8 inches.

DR. IRA REMSEN, president of Johns-Hopkins University, has an exceedingly interesting article in the "Scientific American" of September 16, 1911, on synthetic rubber—that is, it is interesting the moment he begins to touch on the chemical side of it. His "few words concerning rubber," however, show a lack of broad information. He gives South and Central America the credit for most of the crude rubber produced, mentioning to be sure, plantations in the Middle East, but ignores the great African production. His description of coagulation, as long as he is referring to the South American product, is also inaccurate, the reader gathering the impression that the rubber is heated, which to the popular thought will mean boiled, when he should have made it definite that it is smoked.

These are minor points, however, which make no particular difference either way, while the fact that a scientist as distinguished as he is acknowledges that synthetic rubber is here, is however, of vital interest.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

A SOMEWHAT startling incident occurred recently at a Birmingham rubber works, a series of explosions taking place when some Cametá rubber was being washed. Inspection showed that some cartridges had been concealed in the rubber by the wily native, doubtless with the intention of

CAMETA RUBBER.

increasing the weight and not with any sinister intent on life or property. It is commonly supposed that the weighting of raw rubber by extraneous bodies such as metal and stone is now entirely a thing of the past, but I may say that with Cametá rubber such a thing is of quite common occurrence today. Stones are commonly found in it, iron tools being also among recent finds. As a rule, these bodies are well concealed and not to be detected until the rubber is cut open in the purchaser's factory. Apart from this objectionable peculiarity there is nothing to be said against Cametá rubber except perhaps with regard to its somewhat variable loss in washing. The figure may be 40 per cent. or it may rise to 50 per cent., but whatever the actual loss may be, the washed out rubber is always of one uniform quality, a fact which is appreciated in the factory. The rubber has thus come to be looked upon as a very reliable quality and is especially in favor for spreading purposes in some works, though it may be said that it is of general applicability for high-class purposes, owing to its low proportion of resin.

ONE of the most important and discussed topics of the day is the reduction in the prices of motor and cycle tires by the Michelin Company. This reduction, which was announced in September, amounts to about 15 per cent. on previous prices. This reduction is by no means generally agreed with by English makers, who say that it is premature and unwarranted by existing market conditions. Naturally English manufacturers have had to follow suit, among those who have announced a similar reduction being the Dunlop Company, Limited, and the Avon Company, Limited. As a set-off it is admitted that the price of the canvas shows a reduction of from 7½ to 10 per cent. on last year's prices.

TIRE PRICES.

IN the August issue of THE INDIA RUBBER WORLD a description with figures is given of Prof. Alfred Schwartz' hysteresis rubber testing machine, which I understand is coming into favor in rubber works, and in some cases at any rate has ousted other types of dynamometer previously used. It need hardly be said that the physical testing of rubber, as opposed to the purely chemical, has achieved great prominence in recent years, the main feature perhaps about its progress being the variety of dynamometers to be met with, each of which is claimed by the makers thereof to be the ideal machine for the purpose. The subject of course is a somewhat difficult one for the ordinary works manager to tackle, and one only comes across dynamometers in works where there is a laboratory under scientific control. Perhaps the greatest drawback to the Schwartz machine is the inclusion and association of the word hysteresis; plain rubber men having been known to say that anything of that sort would be too scientific for them. This has been said by authorities in works where the ordinary cloth testing machine is in regular use. I noticed at the late Rubber Exhibition that Mons. A. D. Cillard had had the brochure on the Dynamometer system of Paul Breuil translated into English. This brochure is a somewhat lengthy one, giving close details of the construction of the machine and a series of tests made on rubber textile and plastic materials, showing its capabilities and usefulness. At

DYNAMOMETERS.

this exhibition some well-known German machines were also on view, while tests were being carried out at the working stand of the Continental Rubber Co., Limited (Guayule) on a machine which I understood Mr. H. van der Linde to say was one of their own design. For the tensile tests of duck sheeting, etc., some of the rubber works in the Manchester district regularly use the cloth-testing machine made by Nesbitt of Market street, Manchester, the cost of which is about £12. This is the machine used in the testing laboratory of the Manchester Chamber of Commerce. The rubber works use the machine also for testing rubber, but since the appearance of Schwartz's machine there is a noticeable disposition to use the latter for rubber purposes.

A YEAR or so ago the Peruvian Amazon Company was strongly attacked in "Truth" in a series of articles entitled "The Devil's Paradise." The complaint was that gross cruelties were perpetrated by the company's agents in compelling the Indians to collect the rubber. The articles were referred to cautiously in THE INDIA RUBBER WORLD at the time, probably because the Peruvian Amazon directors were talking of libel action. Some people in England indeed who enlarged in righteous indignation on the "Truth" indictment did tender apologies which were duly advertised by the directors. Mr. Labouchere, however, did not withdraw anything and was not called upon to defend a libel action. The board was a mixed one of English and Spanish speaking gentlemen, and of course every one was quite ready to believe that the London directors had no personal knowledge of the cruelties perpetrated in the carrying on of the rubber business in Peru. When the indictment appeared they promptly caused all enquiries to be made, and gave every assistance to certain government officials who were deputed to look into the matter. The latest news of the company is that at a meeting of shareholders, held in London in September, a resolution for voluntary liquidation was brought forward by the directors and adopted by the meeting. This does not mean that the company comes altogether to an end, as in all probability it will be reconstructed.

PERUVIAN AMAZON CO.

ON a former occasion when dealing at some length with the use of rubber at metal mines I referred to the Buss vanning table which has a surface of vulcanized rubber which I have frequently found to be in poor condition. As a rule the rubber used for this purpose is more heavily compounded than in the belts used for the Frue vanners. I recently visited a lead mine in rather a remote spot in the north of England, and found the rubber on the Buss vanners very far advanced towards decay. I found also that the foreman had been supplied by the management with a patching outfit with which he had been struggling with very partial success. It ought to be more generally understood that compound vulcanized rubber is not everlasting and should be renewed at intervals. This is where the Wilfley table with its linoleum surface seems to have an advantage over the Buss table.

A METAL MINE PROBLEM.

THIS firm is one of the most recent additions to the list of reclaimers in England, if indeed it is not the most recent, having been formed just about a year ago. It is located in convenient premises at the Phoenix Mills, Daw Bank, Stockport, about five miles from Manchester. The directors include G. H. Cartland, of Enwick Grange, Worcester; W. H. Veno and N. Barnes. The two latter are well-known Lancashire business men, while Mr. Cartland, though he has many business interests is perhaps most widely known in his capacity as president of the

THE MERSEY RECLAIMING COMPANY, LIMITED.

Warwick County Cricket Club, a post he has held I believe for about 25 years. This year he has had the satisfaction of seeing his club win the county championship for the first time. But this, by the way. The reclaiming process used by the Mersey is I understand different from that used previously by established and competitive firms. The work's manager is Mr. Gray, who has recently had considerable experience in rubber reclaiming in the United States. Before going to America he occupied positions at the Dunlop Co., Limited, and F. Reddaway & Co., Limited. He is, I may add, a brother of Mr. J. G. Gray, the present works manager of the Gorton Rubber Co., Limited.

At eleven o'clock on Saturday night, September 16, some naphtha drums which had been stored near the base of one of the large chimneys at the works of Chas. Macintosh & Co., Manchester, exploded, giving rise to a fire which caused

SHORT MENTION.

the town fire brigade some trouble to subdue, owing to the extreme inflammability of the material which fed the flames. The works were never in danger, the main risk being limited to the chimney, and this was fortunately saved from disaster by the firemen's efforts. What caused the drums to explode remains much of a mystery, but the extremely hot weather which has been responsible for so many fires of one sort or another this year may have had something to do with it.

A serious motor car accident occurred near Hawarden, North Wales, on October 1, when a car, containing H. L. Rothband and members of his family, collided with another containing two gentlemen, one of whom was killed outright and the other very seriously injured. The Rothband family, though bruised and shaken escaped serious injury. Mr. Rothband is well known in the rubber trade as partner in the proofing works of J. Mandelberg & Co., Limited, of Pendleton, Manchester.

The Manchester proofing trade has recently lost a well-known figure in Lazarus Mistooski. For about forty years he had been connected with the trade, and about twenty years back had a proofing works at Heywood, a town in the Manchester district. This was subsequently given up and a few years afterwards he started the firm of L. Mistooski & Co., Limited, at Manchester.

"A PALE, STICKY LUMP OF HORROR."

A reporter on the London *Financier*, who evidently has a very susceptible sense of smell, contributes the following paragraph to his paper in reference to an artificial rubber made largely of coal tar, and further referring to a lump of synthetic rubber that he saw, or more properly smelt, when attending the rubber exposition last summer:

"In the latest project for making artificial rubber coal tar is said to be the chief constituent, and the process is described as not only successful, but cheap. I don't mind what these gallant inventors use to produce so-called rubber, provided it is something different from the stuff composing the 'synthetic' rubber made at the late exhibition. Whenever I think of that pale, sticky lump of horror which I was prevailed upon to smell shortly after its emergence from the mysterious 'autoclave' I—well, feel I shall never want a dinner again! Limburger—ofttimes cited as possessing the limit of power on the olfactory nerves—is comparatively innocuous, so I am sure coal tar—hot or cold—would prove a veritable attar of roses. Good luck, then, to the humanitarian inventor!"

MALLETS OF RUBBER.

The doctors are now using rubber mallets for certain purposes. The matron in the Bayonne police headquarters suffered severely from rheumatism, and recently underwent a peculiar operation performed by several local surgeons. The flesh and bones about her knees had grown together. The doctors broke her knee caps, using for this purpose a small rubber mallet. Her bones were then re-set in their proper position.

THE EXHIBITION TROPHY AWARDS.

WITH reference to the award of both the "India Rubber Journal" shield and the "Grenier's Rubber News" silver trophy to the Sungei Kapar Rubber Company, Limited, Selangor, Federated Malay States, it is of interest to note that this company was registered in July, 1906, and has a paid-up capital equaling \$500,000, the British offices being at Edinburgh. It has 2,031 acres under cultivation, planted at various dates from 1902 to 1908, and had in 1910 an output of 225,400 lbs. dry rubber, its crop for 1911 being estimated at 300,000 lbs.

In connection with the details quoted by the INDIA RUBBER WORLD in its October, 1911, issue (p. 11), the detailed results of the two awards indicate the high character of the company's product.

"INDIA RUBBER JOURNAL" COMPETITION.

	Maximum possible.	Points awarded.
Color test.....	10	10
Chemical test.....	20	16.5
Vulcanizing test.....	70	70
Total	100	96.5

"GRENIER'S RUBBER NEWS" COMPETITION.

	Maximum possible.	Points awarded.
Color test.....	10	10
Chemical test.....	20	18.5
Vulcanizing test.....	70	70
Total	100	98.5

By analyzing the detailed returns of the 66 awards in the "India Rubber Journal" competition, the importance of the vulcanizing test as an element of comparison is clearly shown, 70 points out of a possible hundred having been allotted to that test. The average award for the 66 items was about 57 points, or approximately 20 per cent. under the maximum, there being 33 awards of between 60 and 65 points.

In the color test the average award was only about 5 points out of a possible 10, it being thus indicated that relative inferiority of color is compatible with a comparatively high grade of vulcanizing property. Thus in one case an award for color of 1 point out of 10 was accompanied by one of 65 out of 70 for vulcanization. The awards for color range through the whole gamut from 0 to 10, while the chemical test is not only more uniform but averages about 18 out of a possible 20.

The general average result is shown as follows for the 66 awards in the "India Rubber Journal's" competition.

	Maximum possible.	Average points of 66 entries.
Color test.....	10	5
Chemical test.....	20	18
Vulcanizing test.....	70	57
Total points.....	100	80

Broadly speaking, almost the same result is shown by the returns of the 45 awards in the competition of "Grenier's Rubber News":

	Maximum possible.	Average points of 45 entries.
Color test.....	10	6
Chemical test.....	20	18
Vulcanizing test.....	70	50
Total points.....	100	74

The total number of items in the two competitions was 111, contributed by 40 separate competitors, of whom 23 were in both contests.

Some Rubber Interests in Europe.

MEYER COHN, HANOVER.

AN important firm in northern Germany is that of Meyer Cohn, Hanover, operating a combination waste rubber, rubber chemical and reclaiming plant.

This house was originally an old metal concern, its present large rubber interests having been developed by Samuel



SAMUEL BARON.

Baron, well known in rubber circles in both America and England.

Meyer Cohn now employs several hundred hands and does an extensive business in his various rubber lines.

GOLDEN JUBILEE OF HANOVER CONCERN.

On April 19, 1912 the Hannoversche Gummi-Kamm Company, A.-G., Hanover, Germany, will celebrate its fiftieth anniversary. The company now has 3,000 employees on its payroll. It is represented in New York City by Julius Lehman.

NEW HOME OFFICE BUILDING FOR CONTINENTAL COMPANY.

The Continental Caoutchouc-und Guttapercha Company, Hanover, Germany, commenced the construction of its new office building on October 1. The new structure will be erected on the site of the present office quarters and is not expected to be ready for occupancy for 18 months.

VEREINIGTE GUMMIWAAREN-FABRIKEN HARBURG-WIEN.

In the report of the Vereinigte Gummiwaaren-Fabriken Harburg-Wien for the 39th business year, from July 1, 1910, to June 30, 1911, reference is made to the depression of prices for manufactured rubber products, caused by the great fluctuations in crude rubber. Several competing factories would seem in the first half of the business year, to have made reductions, to a greater extent than the position of the raw material justified.

The works both at Harburg and Wimpasing were actively employed during the business year, the output being within about 15% of maximum capacity. These conditions are attributed to the quality of the product, as illustrated by the high awards obtained at the Brussels Exposition and at the London Rubber Exposition; the last named being the only one granted for the rubber manufactures of all countries.

With a view to promoting its interests, the "Kautschukgesell-

schaft Schön & Co." of Harburg, controlled by the Vereinigte Gummiwaaren-Fabriken has secured important jelutong concessions in the Dutch Indies.

During the first months of the new business year a satisfactory increase of trade has been recorded.

NEW AMERICAN RUBBER RECLAIMING PLANT IN RUSSIA.

It is rumored that the U. S. Rubber Reclaiming Works contemplate erecting a reclaiming plant in St. Petersburg.

GREAT BRITAIN

The British West African Association, of which the Right Honorable Earl Cowley is president, with headquarters in London and branches throughout west and equatorial Africa, has paid the editor of THE INDIA RUBBER WORLD the distinguished compliment of electing him an honorary member of the association.

BRITISH CONCERN SECURES LARGE GOVERNMENT ORDERS.

The North British Rubber Company, Limited, Castle Mills, Edinburgh, which recently secured the contract for rubber shoes for the British navy, has now obtained a very large order from the government for Ebonite.

DEATH OF SIR CHARLES LAWES-WITTEWRONGE.

The death is announced of Sir Charles Lawes-Witte wronge, proprietor of the Millwall Rubber Company, Harpenden, England. The cremation was attended by representatives of the Society of Chemical Industry, and of other associations of which the deceased had been a member.

CRUDE RUBBER WASHING CO., LIMITED, LONDON.

The report of the first year's working expresses regret at the losses incurred, mainly through the extraordinary drop in the value of rubber; a corresponding depreciation having taken place in the value of stocks bought for the purposes of the company's business. Hopes are expressed that a part of the loss will be recouped by subsequent operations, when the company's products would have been introduced to the different markets of the world, and when the prejudice had been overcome that the quality of the rubber was adversely affected by its treatment.

NEW FRENCH SYNTHETIC RUBBER COMPANY.

According to reports from Paris a company has recently been formed in that city, with a capital equaling \$500,000, for the production of synthetic rubber by the Reynaud process. This process, it is understood, is based on the employment of turpentine, the relatively high price of which has so far proved a difficulty, but the hope is expressed that this obstacle will soon be overcome.

The process in question consists broadly in subjecting turpentine or similar oil to the fractionated action of sulphuric acid, the material thus obtained being then treated by boiling hydrochloric acid. In order to obtain a complete and perfectly uniform transformation of the entire mass of turpentine oil, the latter is first of all divided by immersing therein an absorbent material, such as unvulcanized rubber.

Under the fractionated and progressive action of the sulphuric acid the turpentine oil is by the Reynaud process transformed into a pasty and slightly sticky, elastic material. This material is then thoroughly washed in water, so as to eliminate the excess of sulphuric acid. It can at this stage be industrially utilized, but is preferably treated with hydrochloric acid, being immersed for some hours in a boiling bath of that acid in concentrated form. Finally the acid is caused to boil for some hours after having been diluted with water. In this manner a firm, sinewy product is obtained, which, after washing, it is claimed, presents all the physical and chemical properties of natural rubber.

Some Notes on Rubber Planting.

STATISTICS OF MALAYAN RUBBER PRODUCTION.

ACCORDING to the official report for the year 1910, of the Director of Agriculture, Federated Malay States, the aggregate rubber yield of British Malaya for last year was more than double that of the preceding annual period. The totals shown for the whole of British Malaya are as follows:

	1909.	1910.	In-crease.
Number of plantations.....	534	632	18%
Area in acres.....	855,992	1,014,414	
Planted at end of year.....	292,035	362,853	26%
Acreage in rubber alone.....	253,067	332,958	
Acreage in rubber with other cultivation	38,968	29,895	
Planted during year (acres).....	50,897	70,818	39%
Rubber crop (pounds).....	6,741,509	14,368,863	113%

The separate parts of British Malaya were represented in the following proportions:

	Planted Area 1910.	Crop 1910.
Federated Malay States	68%	88%
Straits Settlements	16%	7%
Johore	12%	41%
Kelantan and Kedah, etc.....	4%	1/2%
	100%	100%

RUBBER CULTURE IN FORMOSA.

By an English Consular report it would seem that last year some 3,500 acres of land in Kagi Prefecture, Formosa, were leased to a Japanese syndicate. *Castilloa*, *Ceara*, *Hevea* and *Ficus Elastica* are to be there planted. It is anticipated that the undertaking will be completed in six years. Meanwhile large numbers of the above-named trees are being raised by the Government horticultural nurseries at a 25-acre plantation near Kagi, for distribution among planters.

FEW FAILURES IN STRAITS SETTLEMENTS.

WITH the collapse of the rubber boom of last year, it would not have been remarkable if failures in the Straits Settlements had increased in number. Returns from Singapore, however, show the number of receiving orders issued were as follows during recent years: 1907, 93; 1908, 100; 1909, 62; 1910, 38.

A reduction in about the same proportion has been recorded in the estimated loss to creditors.

GERMAN PLANTATION CO. INCREASES CAPITAL.

THE increased capital of \$25,000 recently decided upon by the Agu Plantation Co., is understood to have been promptly over-subscribed to the extent of 50 per cent. It is intended to use the new capital in augmenting the enterprise. The company has 86,000 *Manihot Glaziovii* trees planted, in addition to 1,400 *Ficus* and 700 *Hevea*. Those planted in 1906 have now reached the productive stage.

SUNGKAI-CHUMOR ESTATES, LIMITED.

(FEDERATED MALAY STATES), May, 1906, 2,682 acres, area planted 944 acres. Rubber crop for year ended June 30, 1911, 34,531 pounds. Net price realized equalled \$1.14 per pound. Estimated crop for year ending June 30, 1912, 80,000 pounds.

BAMBRACKELLY (CEYLON) TEA AND RUBBER CO., LIMITED.

DECEMBER, 1908, 1,528 acres, all planted. Rubber crop for six months ended September, 1911, 17,749 pounds. Same period last year, 4,625 pounds.

SAPUMALKANDE RUBBER CO., LIMITED.

(CEYLON). October, 1909, 2,227 acres, planted 810 acres. Rubber crop for 9 months ended September, 1911, 71,617 pounds. Same period last year 28,003 pounds. Of 1911 crop, 38,117 pounds sold at average equivalent of \$1.31.

LONDON ASIATIC RUBBER AND PRODUCE CO., LIMITED.

(FEDERATED MALAY STATES), October, 1907, 6,646 acres, area planted, 4,183 acres. The crop harvested on this company's estates during the nine months ended September 30, 1911, amounted to 221,785 pounds; thus showing an increase over the rate for 1910 of about 60 per cent. Of this year's yield, 124,569 pounds have been sold at an average equalling \$1.23 per pound.

MALAYALAM RUBBER AND PRODUCE CO., LIMITED.

(SOUTHERN INDIA), January, 1910, 10,370 acres, area planted, 3,153 acres. Rubber crop for nine months ended September, 1911, 16,135 pounds. Same period last year 4,380 pounds.

RIVERSIDE (SELANGOR) RUBBER CO., LIMITED.

AUGUST, 1909, 2,242 acres, area planted 1,118 acres. Rubber crop for nine months ended September, 1911, 37,319 pounds. Same period last year 7,500 pounds.

SCOTTISH MALAY RUBBER CO., LIMITED.

(FEDERATED MALAY STATES), February, 1906, 2,455 acres, all planted. Rubber crop for nine months ending September, 1911, 53,534 pounds. Same period last year, 18,211 pounds.

VALLAMBROSA RUBBER CO., LIMITED.

(FEDERATED MALAY STATES), April, 1904, 3,424 acres. Area planted, 2,800 acres. Rubber crop for six months ending September, 1911, 199,900 pounds. Same period last year 202,200 pounds.

FORWARD SALES OF PLANTATION RUBBER.

AMONG other forward sales for 1912 of plantation rubber, the following are reported:

	Pounds.	Average equalled.
Selaba Rubber Estates, Limited.....	18,119	\$1.45
Pataling Rubber Estates Syndicate (Limited)	1,676	1.66
Golden Hope Rubber Estate Limited..	12,254	1.45
Bikam Rubber Estate, Limited.....	6,382	1.46
Sapumalkande Rubber Company, Limited	8,177	1.46
London Asiatic Rubber and Produce Company, Limited	34,393	1.44

SEAPORT (SELANGOR) RUBBER ESTATE, LIMITED.

JUNE, 1910; 2,000 acres, area planted 1,000 acres. Rubber crop, year ending June 30, 1911, 17,717 pounds; average price realized equalling \$1.13.

WAMPOE TOBACCO AND RUBBER ESTATES, LIMITED.

AT the formal general meeting held on October 10, in London, the directors reported that considerable progress had been made by this company. Five hundred acres have been opened up for Pará rubber; it being intended to complete the planting of this area by the end of the current year.

NEW LATEX PROCESS.

Mr. Derry, assistant to Dr. Henry N. Ridley, Director of the Botanic Gardens, Strait Settlements, has patented a process for coagulating, by conveying the latex on a cloth belt through a volume of smoke.

Stillman Shaw and Warren B. Wheeler of the North American Rubber Company, who were arrested last spring charged with using the mails illegally, were discharged September 22 by United States Commissioner Hayes. The prosecution failed to substantiate any charge that in selling stock the defendants had misrepresented the conditions of their company.

THE "SERINGUEIRAS" OR RUBBER TREES OF THE AMAZON.

A PORTUGUESE DESCRIPTION OF RUBBER GATHERING.

THE seringueiras *Heveas* produce the best known rubber. The basin of the Amazonian rivers is the country on which the different kinds of trees are scattered, unequally grouped, depending upon the nature of the ground, altitude, its dampness, etc. There are several varieties of rubber trees. We note 21 different kinds, of which five take a prominent part (Huber).

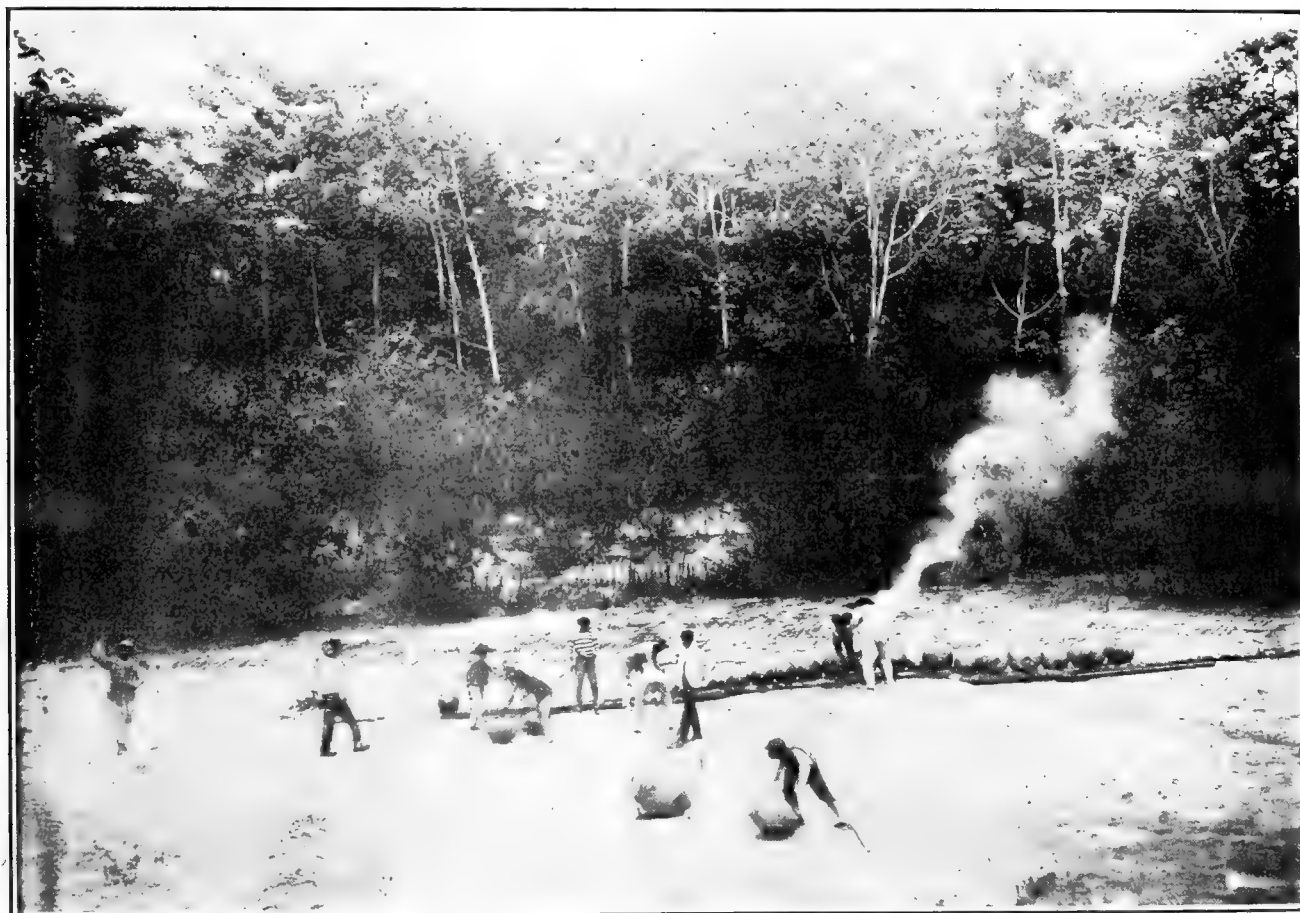
The rubber tree "rana" or "mangue" (*Hevea guyanensis* or *siphonia elastica*) will grow in a very damp ground, nearly always inundated, situated at the mouths of rivers. This tree does not give a very important product.

The rubber tree "branca, vermelha ou preta" white, red or black (*Hevea Brasiliensis*) is found in groups on the islands and at places of inundations, from the middle upward to the high parts of basins of nearly all the Amazonian tributaries. It is also found on solid ground (especially the red variety, which is the least milky) and in places filled with dampness during most of the year. This rubber tree produces the largest quantity and the best class of Amazonian rubber.

The rubber tree "puca" (*Hevea viridis*) yields latex of an inferior quality. The rubber tree "barriguda" (*Hevea spruceana*) is frequently encountered on solid and high ground, between the

The rubber trees are found in nearly all the Amazonian territory, from the sea level up to the altitude of 600 meters (about 2,000 feet) and more, but the best quality is encountered on the islands lying at the mouths of big rivers, and in the high basins of the principal Amazonian tributaries, principally the Madeira, the Purús, the Jurua, the Javary and their own ramifications.

The longevity of the rubber tree is not known exactly—it may live 100 years or more. The milk production accumulates with the age of the tree and therefore its value is increasing with age. Barring accidents or sicknesses, which are very rare, the rubber tree being less inclined to sicken than any other domestic tree, it is supposed to live the time mentioned above. Compared to a gold mine, the rubber tree is much more valuable, because every dollar of profit that is drawn from a mine represents a depreciation in its value, whereas with every year, the rubber tree will augment its production of a better quality. It is an inexhaustible mine, without limits. The rubber tree is an automatic augmentation of profits. With every year's production these profits are increased without depreciating the value of the tree. The rubber trees develop into majestic trees growing tall and straight. At the blooming time, the air of the seringal (rubber plantation) produces a very agreeable perfume attracting swarms of bees and other insects. Four months after, the seeds begin to appear in hanging clusters. During the hot season there is a discordant concert of a fantastic musketry in the seringal which is produced



Photograph by Algot Lange.

BRANDING PELLETS OF PARA RUBBER.

two rivers and in the vicinity of the interior lakes. The latex is not of a good quality, but is used in the mixture of other better varieties of rubber.

The rubber trees "itauba" or yellow (*Hevea Cuneata*), which produces a rubber of good quality, lives best on high, dry grounds.

by the cracking burrs, opening themselves and scattering seeds in all directions.

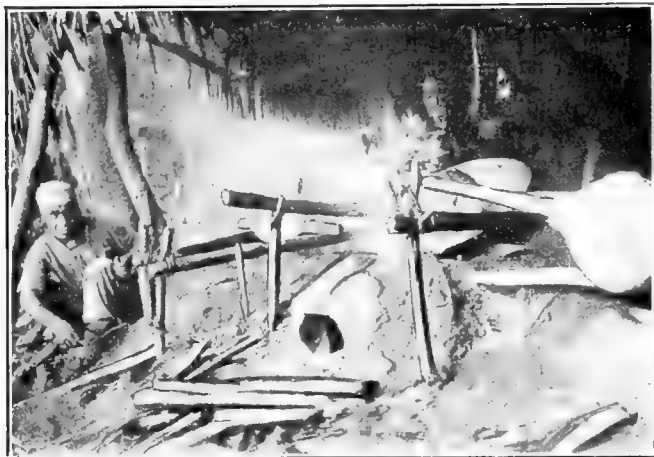
For the exploration of the rubber, the first duty consists in opening the estradas, which are opened by the matteiros, who are experts on rubber trees.

The estradas are supposed to hold about 120 to 180 trees

(*Heveas*), forming as nearly as possible a circle or a figure 8, in order that, starting from any part of the estrada, the seringueiro will always find his way back. There, the seringueiro builds himself a hut covered with "Paxiuba or Ubussu" that protects him poorly against the elements.

Besides these huts, which are located in the working estrada of the seringueiros, there is the "Centro or Barracão do Patrao" (or the house of the foreman), containing generally a shop, where commissaries, munitions and working tools are supplied, and where all the rubber of the estrada is gathered.

The working material of the seringueiro is very simple and cheap. The necessary tools are: A small machadinha, weighing



RUBBER GATHERERS' CAMP, SHOWING FURNACE FOR SMOKING.

125 grams (4.4 oz), having an edge of 0.25 mm. (0.01 inch) to which a handle is affixed, the length of which depends upon the necessities of the work; a zinc bucket of 6 to 8 litres (1.58 or 2.11 gallons) to gather the latex, 500 to 600 tijellinhas (tin cups) with a capacity of 200 cubic centimetres (12.2 cubic inches) and a basin of zinc, where the contents of the buckets are deposited before the defumacao (smoking).

The work starts early in the morning, the seringueiro armed with his machado and carrying a bag of tijellinhas (tin cups) on his shoulder, is exploring the estrada and works at each tree, as high as possible, cutting oblique incisions (taking the upward direction) through all the thickness of the bark. Below each of these incisions he immediately inserts a tijellino, introducing its edge by an inside depression into the bark, or he hangs it up with damp argyl.

The number of horizontal incisions varies in accordance with the thickness of the tree. At 10 a. m., when the dropping has nearly ceased, the seringueiro leaves the hut again with the bucket in which he pours the contents of all the tijellinhas and which he leaves at the bottom of the tree upside down on small sticks which are standing in the ground for this purpose. When returning to the "centro" the defumacao is started.

The smoker, protected from the weather by a few palm leaves, is placed near the hut. It is a straight truncated cone, generally made of iron, 50 centimetres (19.68 inches) wide. The seringueiro places it on two stones and builds a fire underneath feeding it with "coco" (the urucary or the inaja) which, on account of its rich smoke containing antiseptical qualities, coagulates the rubber. It is with a kind of cane terminating in a round and straight shovel, similar to the paddles of the canoes used on the Amazon, which lies on a pitchfork at the bottom of the fire, that the seringueiro makes the defumacao (smoking process). First he passes this cane over the smoke then dips it in a basin close by, which is full of latex, passes it again over the smoke and the first layer appears to be coagulated, then, with a cuia (cup or gourd) he throws over that another layer

and so on successively till the pelle is formed, which represents a ball weighing approximately from 6 to 8 kilos (13.2 to 17.6 pounds), or from 30 to 35 (66 to 77 pounds) at the heaviest.

The well defumated rubber is called "borracha fina" (fine rubber). The rubber by which the coagulation has been badly made, or by which the defumacao (smoking) took place a little late, when the milk was already a little coagulated, is called "borracha entrefina" (entrefine rubber).

The sernamby rubber is the naturally solidified rubber, on the ground, in the trees, in the tin cups, in the buckets, etc. It consists of threads or pellicles, mixed with more or less earth refuse or other foreign substance. Its value is estimated to be 30 per cent. less than the fine rubber.

The harvest and the smoking, in other words, the manufacture of the rubber, lasts from six to seven months a year and during the other months of the very dry season the trees are not touched. At the overflowing time the harvest is rendered impossible on account of the waters inundating the igapos. It is calculated that the average yield of each tree is 44 grams (1.55 ounce) of latex per day, but one rarely gets more than 5 kilos (11 pounds), which per man, represents yearly 450 to 500 kilos (900 to 1,100 pounds) fine rubber and 90 kilos (198 pounds) of sernamby.

After the manufacture, the rubber is taken to the hut of the foreman, and from there sent to Manaus to the aviador, who is the supplier of the provisions and of the goods to the seringas, and who, for the most part, is the real proprietor of the seringal.

From the aviador the rubber is sold to the exporters who send it to the consuming markets of the world.

These exporters are the people who make the "beneficiamento," consisting in opening the pelles in qualifying them (rubber fine and entrefine) and in packing them up in solid pine cases to be then embarked at the Manaus Harbor on board the transatlantics, which take it to the ports of destination.—*Revista Literaria Artistica*.

THE BALATA INDUSTRY OF BRITISH GUIANA.

(By a Special Correspondent.)

AT a recent meeting of the legislature of British Guiana, a bill was passed entitled "The Balata Ordinance, 1911." In the ordinance "balata" includes rubber and any like substance.

Of late there has been a good deal of dispute among licensees as to the boundaries of their grants and the ownership of certain quantities of balata, etc. No regulation existing to govern such disputes, recourse has often had to be made to the law courts, with consequent delay and great expense to the litigants. The interests of various licensees being of a common nature, the Law Officers of the Crown, on representations made by the British Guiana Balata Association, drafted the bill which has become law. It is very simple in its nature. It sets out that in all cases of dispute as to the boundaries of any grant or grants, the Commissioner of Lands and Mines shall, on request, cause a survey to be made, and such survey and boundary line "shall be conclusive." The expenses of these proceedings shall be determined by the Commissioner, whose decision shall be final, and shall be borne proportionately by licensees of the adjourning grants.

In case, however, of disputes as to the ownership of balata, the same procedure has to be followed as governs disputes regarding gold, viz.: the person claiming the balata must file his claim in writing with the Commissioner, who, after hearing evidence and making investigation "personally or by means of any officer of his department, shall have power to make such order as to the disposition of the balata and as to the costs of the inquiry as he may deem just." From the decision of the Commissioner on this point there is, of course, the right of appeal to the Supreme Court.

This is the essence of the whole bill, which also empowers the Governor and the Court of Policy to make regulations "for any of the purposes of this ordinance."

PROGRESS IN BRITISH GUIANA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: All our rubber is looking splendidly from the oldest trees planted out to the stumps in the nurseries. The measurements of the oldest trees, taken when exactly 2½ years old, 11 inches in circumference 3 feet from the ground, show for the best one an average of 81.5 inches, which I think is very good, as they are now increasing in girth very much quicker than at first. Then we have trees of 15 months up to 5 inches, and many



"HEVEA BRASILIENSIS" AT BARTICA, BRITISH GUIANA.

just a year old that are over 4 inches; in fact, we have not one rubber plant on the estate that is unhealthy looking. The young seedlings we put out a few months ago are all coming along splendidly.

We have just finished up three years from the time I commenced to take the rainfall here, and for that period I should say that it was about the best in the way of distribution of the rainfall known on any rubber estate in the world. The details I have sent to the New York office, and if they interest you doubtless they will let you have a copy. Our longest times without rain for the three years have been once ten days, twice nine days, once eight days, once seven days; so that only five times in three years have we had a week at a time without rain, and the rainfall for each of the three years is practically the same, as follows: From September 1, 1908, to August 31,

1909, 110.28 inches; 1909 to 1910, 111.06 inches, and 1910 to 1911, 110.54 inches. During the three years we have had 296 dry days and 799 days with rain, so that with that kind of rainfall and all our other conditions taken into account, I do not see how it is possible for rubber trees not to thrive.

I find that I have a rough copy of the statement that I sent to the office which I am enclosing. It was taken from our book, which I am quite certain has been kept properly, as with the exception of the past three months it has been kept by my wife or myself, and during the past three months by my assistant, who is a very good and reliable man. G. B. WITHERS.

THE HILLS ESTATE, BARTICA, BRITISH GUIANA.

Rainfall for Past Three Years.

Rainfall.	1908 to 1909. 1909 to 1910. 1910 to 1911.		
	Inches.	Inches.	Inches.
September	6.44	3.73	7.04
October	6.51	10.14	5.37
November	10.23	4.59	8.03
December	15.14	10.52	3.83
January	5.13	11.50	10.70
February	12.37	8.81	10.12
March	7.23	10.72	8.93
April	5.95	8.10	12.99
May	13.57	8.82	12.88
June	11.68	15.42	12.78
July	8.71	12.92	10.14
August	7.32	5.79	7.73
Totals	110.28	111.06	110.54

(EDITOR'S NOTE.—Mr. Withers, who is superintendent of "The Hills" estate, sends, in addition to the rainfall table, some very interesting additional figures. For example, he has kept a record of wet days and dry days. From 1908 to 1909 there were 122 dry days and 243 wet days. The next year there were 91 dry days and 274 wet days, and the year following 83 dry days and 282 wet days, all of which is exceedingly interesting.)

BRITISH GUIANA NOTES.

BRITISH GUIANA AND THE LATE RUBBER EXHIBITION.

THE presentation of the silver cups won at the late International Rubber Exhibition by Mr. W. Hodgson of Pin Nortgedacht and the Consolidated Rubber and Balata Estates, Ltd., for rubber and balata exhibits, respectively, was made with appropriate ceremony on September 22, at Georgetown, by the Acting Governor of British Guiana. In the course of his remarks he alluded to the fact that the judges had pronounced Mr. Hodgson's samples to be equal to the very best they had seen from the East. He likewise referred in complimentary terms to the award of the balata trophy to the above-named corporation.

SIR FREDERICK HODGSON ON DEVELOPMENT IN BRITISH GUIANA.

COMMENTING upon the general situation in British Guiana, Sir Frederick Hodgson, the retiring Governor of that colony, alluded to the good work being done by the Government agricultural stations, adding: "The rubber industry is forging ahead and several companies, backed by English capital, have started work. The export is at present small, but rubber will prove in the near future to be one of the most important industries of the colony."

BRITISH GUIANA DOUBLES RUBBER ACREAGE.

At a recent meeting of the British Guiana Board of Agriculture, Professor Harrison reported that the area under cocoa was a little smaller than recorded for last year, due to certain people turning their attention to rubber. The rubber acreage had about doubled.

DOES "SAPIUM" GROWING PAY?

In a recent contribution to "Timehri," the journal of the Royal Agricultural and Commercial Society of British Guiana, Mr. Edgar Beckett raises the question, whether the *Sapium Jenmanii* yields rubber at a sufficiently early stage of growth to make *Sapium* rubber growing a commercial undertaking. He asks whether we have to wait for five or fifty years before a product comparatively rich in rubber and poor in resin is obtained.

According to Mr. Beckett, some of the wild *Sapium* trees in British Guiana yield a rubber which can command a price, when cleanly prepared, very little below that of fine hard Pará.

BLEEDING OR CUTTING DOWN BALATA TREES.

THE proposal recently ventilated that instead of balata trees being partially bled and kept alive for future bleedings, they should be cut down entirely and every ounce of balata extracted, occasioned much surprise in the colony. On calmer consideration, however, many people began to think there was a great deal in the suggestion.

A prominent member of the British Guiana Balata Association has expressed the opinion that from a business standpoint the latter plan is much preferable. The question is one of figures, the point being what will the yield be by cutting down the tree and how much will it cost, as compared with the yield and cost by periodical bleedings. On this subject he remarked:

"It is understood that the balata tree on being cut down yields 30 lbs. to 40 lbs. of milk, whereas under the present system the quantity obtained by a good bleeder is only some 5 lbs. By periodical bleeding, therefore, it would take 30 years to get a result obtainable immediately by cutting down the tree, and I venture to say that there is hardly anyone in the colony who will contradict the statement that at the end of 30 years the trees will be dead. The cost of periodical bleedings must necessarily be very much greater than the cost of cutting down trees, and, the question comes to be whether it is better to bleed entirely a tree at once or allow it to remain till it dies within a period of 30 years? The answer is clear when I state that balata is today fetching a high price and that no one can say what will be the state of the balata market 30 years hence. It must be borne in mind that the price of rubber will probably drop in the next few years, owing to the large cultivation of that article now going on throughout the world, and the drop in the price of that commodity will undoubtedly affect the price of balata. It is obvious, too, that the system of cutting down trees and thus providing employees with more regular work would put employers in a better position to handle labor."

AMERICAN AND DUTCH CAPITAL IN BRITISH GUIANA.

IN reporting the satisfaction with which the despatch of the British Colonial secretary with reference to a proposed increase in the salary of the governor had been received in British Guiana, a Reuter's despatch from Georgetown adds:

"Most of any hinterland development that has been carried out is the work of American capitalists. They have the gold and diamond industries—both capable of much, if sufficient capital were introduced to carry them on properly—almost entirely in their hands, and, whilst most of the rubber and balata companies are British, there are large corporations that represent American and Dutch capital. The sugar industry (the staple industry) is the only one carried on exclusively by people in the Homeland; but here again Great Britain is doing little to encourage it, taking very little sugar, by far the bigger proportion of the crop going to Canada.

"That the natural resources of the Colony are wonderful cannot be doubted, but the contrast between 'what is' and 'what might be' is most striking. In a district comprising thousands of miles only a few hundred acres are cultivated. At these patches rubber is growing in the most promising manner, and

coffee, cocoa, cocoanuts, fruit and ground provisions are produced in abundance, and yet all around is bush. The great necessity of the Colony for the development of its industries is railway construction, and what every person in British Guiana is undoubtedly hoping is, that a new governor will be appointed of such experience and proved capacity in constructive administration, as will enable him to bring into existence the railways which alone can give the Colony that great access of prosperity for which all the natural material is at hand."

BIG AMERICAN SYNDICATE?

An interesting rumor is quoted by the "Daily Argosy," of Georgetown, to the effect that a big American syndicate contemplates going in for the gold, timber and balata industries of British Guiana. The syndicate, it is said, has a large amount of capital, so is in a good position to carry on the industries for all they are worth, which, in the opinion of many familiar with the resources of the colony, is all that is required for highly remunerative returns to be obtained. The lands to be applied for are in the direction of the Venezuelan frontier. The name of the syndicate has not been divulged yet, but its local representative is said to be a well-known gentleman.

BALATA BLAZE.

A Benab belonging to the Consolidated Rubber and Balata Estates, Ltd., and situated on one of the company's balata grants on the Siparuni, has been burnt down, and 1,000 pounds of balata destroyed. It has not been ascertained how the fire originated, and this can only be conjectured. The balata had been placed in the benab to dry and blazed furiously.

AN INTERESTING LECTURE IN PROSPECT.

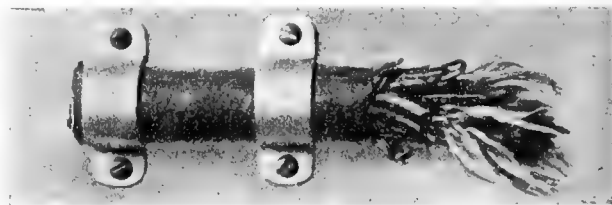
At a recent meeting of the British Guiana Royal Agricultural and Commercial Society, the president stated that a promise had been received from Dr. Cramer, of Surinam, to give a lantern lecture on "Rubber Growing in the East and West." He added that Dr. Cramer would come from Surinam for the special purpose of delivering the lecture.

TRANSPORT TO BALATA GRANTS.

At a recent meeting of the Balata Association a sub-committee was appointed to go into the matter of transport to the balata grants by means of roads. It was arranged to take steps to get a flying survey of the district from the Potaro point south.

THIRTY-SIX YEARS OLD AND STILL AT IT.

Very few pieces of mechanism that began work 36 years ago are still doing duty, but there is one at least, and that is a piece of aerial cable suspended under one of the elevated railway structures in Brooklyn. It was in use for a good many years



A PIECE OF CABLE 36 YEARS OLD.

on the Brooklyn Bridge, and then was transferred to its present position. Altogether it has been doing duty for 36 years and is still intact and serviceable. We herewith show a cut of a small section of it. It was made by the Kerite Insulated Wire and Cable Co., New York, of which fact they certainly have no reason to be ashamed.

A MEXICAN PLAN FOR TAPPING "CASTILLOA."

TO the EDITOR INDIA RUBBER WORLD: Some months ago I contributed to your journal a short article illustrating with a sketch what I believed to be an advance in the direction of tapping *Castilloa* with less excision of bark than is the general custom. I took occasion to say that the use of the chisel one and a half inch in width with a long burl was a modification of the Trinidad and Tobago system, but that my plan provided a permanent system of channels to convey the latex to a cup or other receptacle. I regretted to observe that the sketch was defective as published, inasmuch as the chisel cuts were not shown, though a careful reading of the text would perhaps have been sufficient. Since then another idea has presented itself and is shown in accompanying sketch.

This system contemplates operation on virgin trees, either wild or cultivated, such as have not already been scarred by any other plan, or no plan of tapping. To make the application of this method as clear as possible we will assume that a group of trees to be operated upon have a diameter of ten inches, or in round figures a circumference of thirty inches, and the height of the channels to be ten feet from base to upper end. A cord can then be attached to a little peg driven into the bark at ten feet from the ground, drawn tight and

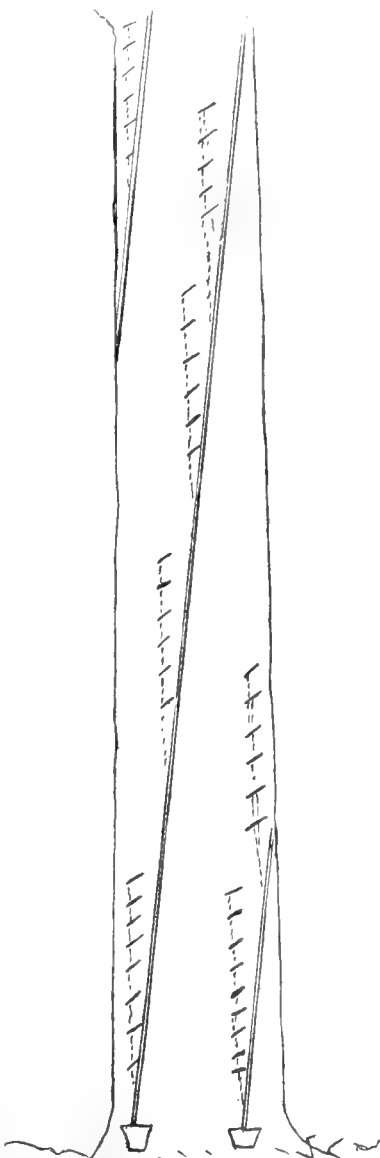


DIAGRAM SHOWING METHOD OF TAPPING "CASTILLOA."

fastened to another peg at the base of the tree. The entire angle should not describe more than one-third of the circumference of the tree. This cord should have a marked line drawn along it on the bark; in other words the bark must be marked with some pigment or colored chalk to serve as a guide for the tools as extreme care should be exercised to have these channels correctly made. The excision need not exceed more than one-half of the thickness of the bark. Some difficulty may be experienced in the beginning with individual trees, the latex of which may not be sufficiently fluid to run freely down the channel, but not more than in any other system; rather less indeed, since the angle is but a few degrees of inclination from the perpendicular, while all other methods as far as I know involves transverse excisions at an angle approximating 45 degrees, over the lower edge of which the latex often falls.

The plan now under consideration provides for three of these

nearly perpendicular channels to be made, not at once but at intervals of three or four months, perhaps longer, according to the vigor and size of the tree; the chisel incisions to be made in a series as shown in sketch. It will be seen that these incisions are in strictly perpendicular series and the incline of the long channel is sufficient to catch and guide the latex to the receptacle at the base.

In establishing the long channels I have said that the excision need not be made more than half the thickness of the bark. When such latex as may be secured is free from the channel, the knife or cutting point can then be run down the center of the channel, lightly touching the cambium where a much increased flow will be had. By this will be understood that most V or U-shaped knives for tapping *Castilloa* have a fine penknife-like attachment to run down the center of the excision made by the first operation.

After a proper lapse of time the chisel operation is then worked and no further excision of bark occurs. One great advantage of the slightly inclined long channel is that less proportion of bark is removed than with the strictly perpendicular channel with the lateral transverse contributing channels; moreover the growth of new bark is in almost uniform line with the expansion of the tree trunk, and the transverse excrescences are done away with.

If we are to accept the evidence up to date as final, viz.: that the phenomenon known as wound response, occurring in the tapping of *Hevea*, is wanting in *Castilloa*, it stands to reason that with the continuing excision of bark in *Castilloa* as now generally practised, a time must come when the tree will require a very long rest to restore the connection between the lactiferous tubes. Physiologically the union should be made much quicker in the case of incision with the long bevelled chisel. This method is not offered as a final solution of the problem of tapping *Castilloa*, but I believe it is in the line of progress, and I trust my fellow planters will give it their consideration.

J. C. HARVEY.

* * *

EXTRACT FROM A LETTER FROM MR. HARVEY, DATE OF AUG. 25/11.

That which most interests me is the amazing growth made by the *Hevea* trees in our El Palmar nurseries—since I was last here in May. Just before my departure for England our seedlings from seeds sown last November stood at a general average of 4 feet. I now find an average growth up to 6 feet, and perhaps one-third of the plants have reached 8 feet, and a few have reached 9 feet. Such astonishing vigor I have rarely seen in any class of plants I have had to deal with. These plants—some 5,000 of the best ones—we are about to transport to permanent position with new nurseries ready for the daily expected receipt of 100,000 seeds from Ceylon.

A recent communication of the Tehautepec Rubber Culture Co., New York, whose property is at Plantation Rubio, Coatzacoalcas, Vera Cruz, Mexico, contains the following statement: "Since the report of May 26, tapping has been continued as the season permitted. Twenty-two thousand seven hundred and eighty trees, with a circumference of 12 to 15 inches 3 feet from the ground, not previously tapped, produced 633 pounds of rubber, shipping weight, with a cost for tapping of 374 labor days. Eight hundred and forty-five re-tapped trees, 16 inches and upward in circumference 3 feet from the ground, produced 22 pounds of rubber, shipping weight, with a cost of 40 labor days for tapping.

"The present policy of the company is to produce all the rubber that can be produced without injury to the trees, to improve so far as possible the physical condition of the trees and of the soil, and to discover and apply the methods which will produce *Castilloa* rubber in the largest quantity, of the best quality, and at the lowest cost."

Rubber Planting in the Middle East.

An Analysis of the Prospects of the English Companies Based on Carefully Prepared Statistics.

WITH the recent development of Asiatic rubber cultivation, it has been difficult to form a typical or aggregate idea of the results achieved, and of the yield to be anticipated in the future. A step in this direction is the interesting statement of Messrs. Gow, Stanton and Wilson, of London, lately reproduced by the *Home and Colonial Mail* of that city, in the form of "Particulars of 55 rubber producing companies in Ceylon, the Straits Settlements, Borneo, Java and Johore."

Two questions of interest are suggested by this statement: What are the results shown for the 55 companies indicated? And further, what proportion do these results bear to those of the much larger number of companies not included in the list?

NUMBER OF COMPANIES.

In dealing with these points, it is first necessary to define how many rubber companies are operating within the limits named. The "Rubber Share Handbook" includes about 500 companies, of which about 350 are in Southern Asia. The remaining 150 are divided between Africa and America, but this figure cannot be considered as representing the proportionate importance of rubber cultivation in the last-named continents, much of which is in private hands; while the 350 companies operating in Asia prob-

from 8 per cent. of those in other parts of Southern Asia, must necessarily be misleading. Such, however, is not the case. The real test is the proportion of such figures (when upon a sufficiently typical scale) to the total output. Owing to the relatively larger number of Malay companies reported upon, as compared with those in other parts of Southern Asia, the consideration of the details quoted from 43 of the first-named class (apart from the other 12), will throw light upon the question of future Asiatic rubber supplies from that direction.

OUTPUT OF SELECTED COMPANIES.

Taking the figures of production recorded for 1910 in respect of these 43 companies as about 8 million pounds, there would be left for the 150 smaller companies about 4 million pounds to make up the total of about 12 million pounds claimed to have been produced last year. Hence the records of these 43 corporations may justly be regarded as representing the output of the companies at present in a productive condition.

ESTIMATED RETURN ON CAPITAL.

On two points the dissection of the figures will be found of special interest, one affecting the past and the other the future



HEVEA RUBBER IN GRASS, THEN CLEARED AS THE SHADE BECAME DENSE.



HEVEA TREES PLANTED IN JUNGLE IN POOR SOIL, SINGAPORE GARDENS—NEVER WEEDED OR ATTENDED TO.

ably cover the extent of Asiatic production, which is largely controlled by incorporated companies.

Geographically divided, the following distribution is shown for the Asiatic companies:

	Total companies in Rubber Share Handbook.	Companies in Gow, Wilson & Stanton's list.
Malay States	193	43
Ceylon	97	7
Borneo, Sumatra, etc.	60	5
	<hr/> 350	<hr/> 55

At first sight, it would seem that any figures based on returns from only 20 per cent. of the number of Malay companies and

The aggregate paid-up capital of the 43 companies equals nearly 30 millions of dollars. On this capital, 8 million pounds of rubber (worth under normal conditions about \$8,000,000 to \$10,000,000) would not represent a very large annual return, after deducting expenses of cultivation and distribution; so that a further increase of profits is naturally dependent on the gradually higher productiveness of the plantations now under cultivation.

NUMBER OF TREES.

With regard to this question, the first point to consider is that this 1910 yield of 8 million pounds was evidently furnished by the trees now ranking as "6 years and upward," and which had presumably commenced to yield rubber last year. These trees now number 1,371,215.

The returns of additional trees planted and now growing, illustrate the natural future output:

TREES FIVE YEARS OLD AND LESS

	Trees.
Five years old, maturing 1911.....	768,245
Four years old, maturing 1912.....	1,883,563
Three years old, maturing 1913.....	2,757,148
Two years old, maturing 1914.....	3,968,286
One year old, maturing 1915.....	2,629,471
Total now growing and not yet matured.....	12,006,713

Adding to these 12,006,713 trees not yet matured, the 1,371,215 trees reported as 6 years and upwards, the grand total is reached of 13,377,928 trees now planted by these 43 companies and producing or maturing within the next few years:

TOTAL OF TREES PLANTED BY 43 COMPANIES.

Six years old or more.....	1,371,215
Five years old.....	768,245
Four years old.....	1,883,563
Three years old.....	2,757,148
Two years old.....	3,968,286
One year old or less.....	2,629,471

Total trees now planted by 43 companies 13,377,928



BADLY TAPPED "HEVEA" TREE, BUT SINCE RECOVERED.

AVERAGE OF FOUR POUNDS PER TREE.

Allowing that even 2 million trees furnished the 8 million pounds of 1910, this proportion would represent an average of

4 pounds per tree. The product of these 43 companies would thus apparently represent:

	Trees.	Product, lbs.
1910-11	2,000,000.....	1910-11 8,000,000
Added, 1912.....	2,000,000	
Total, 1912.....	4,000,000.....	1912 16,000,000
Added, 1913.....	3,000,000	
Total, 1913.....	7,000,000.....	1913 28,000,000
Added, 1914.....	4,000,000	
Total, 1914.....	11,000,000.....	1914 44,000,000
Added, 1915.....	2,500,000	
Estimated total, 1915, of	13,500,000.....	1915 54,000,000

These figures, it will be remembered, apply to only two-thirds of the present product, so that taking the same proportion for the other third, the result would be:

	43 Com- panies.	150 Com- panies.	Total of 193 companies.
1910, lbs.....	8,000,000	4,000,000	12,000,000
1915 (estimated) lbs..	54,000,000	27,000,000	81,000,000

Of course it is doubtful whether the 150 companies not reported upon, have been planting on the same scale as the 43 selected for illustration, but an extension of present output may be considered likely.

OLD AND NEW COMPANIES.

In this connection an interesting fact is shown by the dates of registration of the aggregate of 193 companies, and of the 43 reported upon.

MALAY COMPANIES.

	Registrations.	Producing companies now reported upon.
1903 and earlier.....	7	4
1904	7	5
1905	9	3
1906	24	19
1907	16	7
1908	6	2
1909	58	3
1910	59	—
1911	7	—
Totals	193	43

That the supply from the 150 additional companies, may, by 1915 reach a higher proportion than one-half of that of the 43 selected ones, is another contingency, only to be defined when similar particulars are published as to the former. A glance at the preceding table of registrations will show, that out of 69 companies registered up to 1908, chiefly in 1906 and 1907, 40 have now reached a productive stage, while only 3 companies of the 58 registered in 1909 appear in the selected list (and none of 1910 or 1911 registration) thus leaving 150 companies still to be heard from, whose yield will have to be taken care of in succeeding years.

PARTICULARS OF OTHER COMPANIES.

The value of the above-named table affecting the 43 producing companies (which is reproduced below) would be enhanced by similarly arranged particulars being issued for the other 150 companies, at present "dark horses" in the field. To satisfy their shareholders they must ship rubber, and it would be of material interest to know the extent of such prospective arrangements for the years 1912 to 1915.

PLANTINGS OF 43 MALAYAN RUBBER COMPANIES.

	Total Number of Trees.	6 Years and Upwards.	5 Years.	4 Years.	3 Years.	2 Years.	1 Year and Under.
Malacca Plantations	2,750,000	271,000	114,000	365,000	600,000	750,000	650,000
(E) Johore Rubber Lands.....	885,000	.....	.....	220,000	220,000	220,000	225,000
London Asiatic	966,277	.....	.....	16,237	32,932	585,861	331,247
Anglo-Malay Rubber Co.....	556,572	79,866	68,503	161,010	161,009	86,184	.....
Rubber Estates of Johore.....	541,663	.....	.....	.....	169,860	201,970	169,833
(E) Highlands and Lowlands.....	474,000	110,600	20,600	63,000	76,600	98,700	104,500
(E) Lanadron	461,500	56,700	15,000	44,000	96,200	142,400	107,200
Jugra Land and Rubber.....	450,000	.....	.....	.....	21,600	324,400	104,000
(E) Linggi Plantations.....	419,200	102,100	30,700	33,200	116,100	137,100	.....
Kuala Lumpur Rubber.....	393,012	57,989	20,282	59,005	74,259	94,852	86,625
Straits Bertram	360,189	41,549	3,130	112,643	63,632	120,140	19,095
Seafield	335,826	.....	50,510	92,558	69,096	42,168	81,494
Chersonese	292,850	2,850	.....	.....	95,000	180,000	15,000
Bukit Rajah	284,424	109,411	20,420	39,785	28,546	17,304	68,958
Kemuning	253,792	4,002	270	10,328	42,849	62,912	133,431
Totals of 15 largest companies..	9,424,305	836,067	343,415	1,216,766	1,867,683	3,063,991	2,096,383
Batu Tiga	232,059	.....	55,211	.....	59,698	90,300	26,850
Tremelley	228,370	.....	.....	20,000	80,000	120,000	8,370
Consolidated Malay	227,513	43,347	44,000	80,252	23,038	20,000	16,876
Inch Kenneth	213,400	14,200	54,000	16,600	49,600	79,000	.....
(E) Sungei Kapar	204,100	32,500	21,300	40,000	49,800	20,000	40,500
Pataling Estates	204,044	44,823	35,820	40,000	63,000	20,401	.....
(E) Kapar Para Rubber.....	195,600	300	22,800	36,300	68,500	63,500	4,200
Batu Caves	165,542	28,978	.....	45,911	58,842	23,934	7,877
Sungei Way	164,220	8,800	23,400	55,820	55,950	20,250	.....
Castlefield Klang	162,368	33,200	.....	55,000	3,000	35,000	36,168
Scottish Malay	157,700	.....	.....	50,000	.....	57,700	50,000
Klanang Produce	156,165	8,781	19,320	9,564	48,400	26,100	44,000
(E) Selangor	150,500	87,700	4,900	29,200	26,100	2,600	.....
(E) Sungei Salak	145,700	.....	.....	10,200	19,600	54,000	61,900
(E) Ledbury	142,700	30,100	3,000	7,200	24,900	41,300	35,600
Fed. Selangor	128,397	35,985	8,677	18,196	51,287	5,635	8,617
(E) Vallambrosa	121,400	30,000	30,000	10,000	10,000	11,400	30,000
Banteng	117,567	.....	9,000	20,000	27,450	13,000	48,117
Shelford	104,587	30,134	40,302	20,376	.....	13,775	.....
(E) Golconda	99,200	32,900	.....	20,800	45,500	.....	.....
Damansara	93,313	40,000	2,800	12,000	15,000	11,000	12,513
Val d'Or	89,000	.....	.....	.....	22,000	15,000	52,000
Harpenden	83,978	28,000	28,000	27,978	.....	.....	.....
(E) Cicely Estates	82,900	.....	15,900	19,400	24,100	20,000	3,500
(E) Golden Hope	82,300	3,500	21,800	18,500	21,900	16,600	.....
(E) Perak Plantation	71,900	30,800	4,300	1,200	5,500	30,100	.....
(E) Allagar	67,900	1,100	10,300	12,300	6,300	17,900	20,000
(E) Hidden Streams	61,800	.....	.....	.....	.....	47,200	14,600
Aggregate total of 43 companies	13,377,928	1,401,215	798,245	1,893,563	2,727,148	3,939,686	2,618,071

NOTE.—The mark (E) indicates that the number of trees at each stage of growth is estimated from the acreage quoted, at the rate of 100 trees per acre.

IS NOT THIS RATHER SEVERE?

THE London "Financier" recently expressed itself regarding rubber matters in South America in the following not very complimentary fashion:

"The South American rubber industry, of course, is now paying the penalty for the debauch of rascality which has characterized the greater part of its career in association with the European investor. There have been, from first to last, millions of British money sunk in the development of this industry. Company after company has been floated in Great Britain during the past 20 years (to go no further back) to supply the capital necessary for the opening up of South American wild rubber resources, but with scarce an exception the investors who confided their money to such concerns have not only failed to obtain any return upon it, but have been called upon to face the loss of capital as well. The various governments may consider themselves clear of all responsibility in such matters, and technically their assumption of this attitude is correct. But they cannot wholly evade responsibility for the evil-doing of their citizens, and they must know that the communities were to a considerable extent benefited by the inflow of British investors' money, which, even when not applied to the objects for

which it was obtained, helped directly and indirectly to enrich these rubber-producing countries. Had these countries, too, failed to produce rubber in commercial quantities the British investor might have less cause for grievance in this connection. We know, however, that not only does South America produce by far the larger share of the world's supplies of high-grade commercial rubber, but that those engaged in this business on a large scale have made huge fortunes out of such enterprises. To these people the distressed governments ought to turn for help rather than expend their energies on formulating relief schemes on the lines of those brought forward by the Brazilian rubber states. The British investor cannot be held responsible for the unfortunate state of affairs which exists in connection with the Amazon rubber industry. This condition is the outcome of a total disregard on the part of those engaged in the South American rubber trade of ordinary commercial precautions, and an inability to grasp the potentialities in the matter of production behind the plantation rubber industry as it exists today in the Middle East. The ignoring of these potentialities by the Amazon rubber people is a trivial factor in their present distress, and the fact that it will become a very potent factor in the future has very little bearing upon such troubles."

RUBBER INTERESTS IN THE PHILIPPINES.

THE superintendent of the experiment station at Manila, Philippine Islands, Professor O. W. Barrett, issues some exceedingly interesting and practical suggestions regarding the planting of Pará rubber. As this is intended for American planters, resident in the Philippines, who, by the way, are becoming more and more interested, and for whom there is a decidedly bright future, the instructions are published in *extenso*:

Removal From Seed Bed.—The plants should be taken up only during the rainy season. Unless the soil has been wet with rain the bed must be watered so that the earth will adhere more or less to the roots.

In most cases it will be necessary to cut or break some of the larger roots in removing the seedlings; if many roots are lost in this process it will be necessary to remove some or all of the leaves to prevent evaporation of the sap in the stem before new roots are formed.

The amount of balling which should be done will depend on the character of the soil, the age of the roots, the manner of packing, etc.; generally speaking, the more earth which can be taken up with the plant and packed firmly into a ball around the roots, the less the plants will suffer from the shock.

Whether transported in baskets, tins, or boxes, the seedlings must be protected from drying out and from exposure to the sun.

Seedlings having a height of 1, 2 metres (40 or 80 inches) or more should be cut back to about 60 or 80 centimetres (24 or 32 inches) a few days before removing them from the nursery. The seedlings may be taken up when they have attained a height of 1 metre, and should never be allowed to reach more than 2 metres before transplanting; in special cases trees of 2 or 3 metres could be transplanted in favorable weather by cutting back to about one-half their height before transplanting. Care should be taken to prevent scratching or bruising the bark in handling the seedlings.

Planting.—Setting into the holes should be done after sunset or rainy days.

The location of the plantation should be such that strong winds cannot damage the trees. If there are no adjacent hills or forest trees to break the force of the wind, belts of trees, such as eucalyptus, cocoanut, bonga, or mango, should be planted around and through the plantation, before or at the time of setting out of the Pará trees. Rows of cacahuate (*Gliricidia maculata*) or ipil (*Lucaena glauca*) may be planted—the former by cuttings, the latter by seeds—as temporary protection, or in conjunction with other kinds, like bonga, cocoanut, and eucalyptus.

Sandy soils are dangerous on account of the quickness with which they become dry; low wet soils containing stagnant water cannot be used, though some wet lands can be drained sufficiently to become safe. Localities which regularly suffer from droughts of more than a few weeks duration should be avoided unless adequate irrigation can be provided. Both alluvial and mountain soils are suitable provided they are always moist.

Holes.—The holes should be prepared two to four weeks before transplanting. They must be at least 1 metre in diameter; a depth of 25 to 50 centimetres is recommended. The subsoil, if poor, should be removed to a distance of at least 50 centimetres below the surface of the ground. In filling the holes only "top soil" (to a depth of 10 to 15 centimetres) about the holes may be used; care must be taken to avoid introducing grass roots or weed seeds with this earth. A few days before the Pará plants are set in, the holes may be filled nearly full to avoid delay and exposure of the seedling at the moment of transplanting.

Any broken or dead roots should be pruned off with shears or a sharp knife just before putting the plant into the hole.

The earth must be firmed in well around the roots so that there shall be no air spaces or lumps to cause trouble later. If the earth is not sufficiently moist the trees should be watered at

the time of transplanting and, of course, as often as may be necessary until they are well established.

The proper distance between the holes depends upon local conditions and the plans of the planters in regard to secondary crops. If the plantation is on old cleared ground the trees may be set at 5 or 6 metres, whereas on rich or recently cleared areas 7 to 9 metres would probably prove better, especially if some secondary crop is to be grown during the first few years. There is no serious objection to setting the trees 6 metres providing the weaker trees are removed (tapped to death) as soon as they begin to interfere with the development of the vigorous individuals.

Cultivation.—At no time during the life of the Pará tree may grass of any kind be allowed to grow over the "feeding area" of the roots. The degree of cultivation given to the space between the Pará rows will depend largely upon the local conditions. As soon as convenient all brush, weeds and grass should be eliminated. The surface of the ground, at least near the Pará trees, should be planted with beans or some kind of leguminous cover crop which will not only keep down the grass and weeds, but will keep the area over the roots of the rubber comparatively cool and moist, and at the same time furnish nitrogen to the soil instead of poisoning it with root excretions, as in the case of grass.

Due precautions against fires must be taken.

No secondary crop like camotes, cassava, or bananas should be planted nearer than 2 metres from the Pará; after the third year from transplanting no secondary crop, except legumes, may be grown in the plantation.

The kind of legumes recommended for planting as cover crops in the Philippines are Centrosema bean, Lyon bean, yam bean, velvet bean, sword bean, and any of the native beans; cowpeas, mani manihan, peanuts, cacahuate, and ipil (*Lucaena glauca*.)

The cacahuate, or balóc-balóc, is a shrub or small tree, especially recommended because it may be readily grown from cuttings stuck into the ground; it can be cut back whenever its height exceeds 1.5 or 2 metres, the removed branches helping to increase the humus layer on the ground. The habit of shedding its leaves for a few weeks in the dry season is a disadvantage in using this species: the ipil, or datels, is not deciduous.

If the soil becomes packed, *i.e.*, so wet and clogged that air and water cannot readily circulate through it, it should be forked by the vertical process, *i.e.*, by thrusting a strong-tined fork down into the ground to a depth of 10 to 15 centimetres, then, after loosening the tines, the fork is withdrawn without breaking the roots.

The young Pará trees must be protected from the depredations of pigs, deer, etc.; a woven-wire fence is unquestionably the best means of protection. A very closely planted row of bonga palms (*Areca catechu*) can be utilized after about their fourth year as a live fence; bamboo strips may be woven into it and tied so that even pigs cannot force an entrance; or maguey may be planted between the bongas very effectively.

If live mulches, or cover crops, are not used about the young rubber trees some kind of straw or leaf mulch should be kept over their roots except in very rainy weather. The layer of dry grass, rice straw, or similar material should be just thick enough to prevent the growth of weeds without smothering the Pará roots; it should not touch the stem of the tree; it should be turned over occasionally.

All colonies of white ants (*Termes* spp.) in or near the plantation should be destroyed either by poisoning, fumigating, or "puddling."

All decaying wood should be removed from about the roots of the rubber.

At the Turin Exposition three *Grand Prix* awards in addition to one Diploma of Honor, have been granted the Vereinigte Gummiwaaren-Fabriken Harburg-Wien, in recognition of the varied excellence of its products.

Rubber Growing in the Temperate Zone.

CAN RUBBER TREES BE SUCCESSFULLY CULTIVATED IN THE UNITED STATES?

IN all the magazines published in the west the pages are filled with glowing accounts of the phenomenal opportunities of making a fortune in a few years by planting fruit trees. For example one instance is cited where a party reached a certain fruit section with but \$650 to his name. In twelve years he has managed to secure thirty acres and plant same in apple trees. He now claims that his orchard is worth at least \$100,000, as he realizes \$300 to \$500 per acre annually. Such examples are held up before the public as being within the reach of all, so that many are tempted to try their luck at the same game. Having myself passed through many such orchards I must confess that this field does seem to offer a comfortable competence to

prospectuses of companies developing rubber plantations in Mexico. These compare very favorably with similar documents issued by promoters of fruit lands. Of course they are overdrawn as, for example, the claim made by one of these rubber promoters that two hundred *Castilloa* trees can be planted to the acre, that a conservative estimate would be to count on at least four pounds of rubber per tree annually, worth at least one dollar per pound. A gross income of eight hundred dollars per acre, from which the cost of gathering, namely two hundred dollars, is deducted to secure a net income of six hundred dollars, would compare rather favorably with three to five hundred dollars from an acre of fruit trees. Any one at all conversant with rubber planting knows that the above figures could not be secured except under most phenomenal conditions, and then only in isolated



PLATE NO. 1. *Ficus Elastica* IN FRONT OF HOTEL CORONADO, CORONADO BEACH, SAN DIEGO, CAL.

many a man of limited means. It is indeed a beautiful sight to see a well kept orange grove in full bearing. Throughout the fruit section everything has a distinct appearance of prosperity. Naturally the world hears of the successful ones only. It never is reminded of the hundreds of clerks who have lost their all in trying to become fruit growers.

In Santa Barbara and San Diego I have seen splendid specimens of *Ficus Elastica* that must be many years old. Some of these must have been planted thirty or more years ago, but strange to say, nobody seems to have taken notice of the fact that these are actual rubber producing trees. Where our western people are so keen to take advantage to exploit anything and everything it does seem remarkable that some live promoter has not seen the golden opportunity to make a fortune out of rubber produced in his own country. At various times I have seen

cases. But if we cut the promoter's figures in half we are not so far away from actual facts. Then compare these figures with what is done with fruit lands. The results are pretty much the same, with the advantage on the side of the rubber grower, for he does not have to lose any part of his crop as the fruit grower does when he cannot pick the fruit in time; for if the rubber tree cannot be tapped today it is perfectly safe to wait until tomorrow.

Practically all the fruit grown in California is on irrigated lands. The same would probably have to be done with rubber, although all the trees I have seen were in parks or private grounds where no irrigation was in evidence.

As regards the climatic conditions the following figures secured from the climatological service of the weather bureau, United States Department of Agriculture, covering an average year, give

evidence that rubber tree culture may be possible. That these figures must be fairly accurate, and that they must have held good for many years is furthermore proven by the photographs. The figures show the maximum, minimum, and average monthly temperatures in degrees, Fahrenheit, and the rainfall in inches for this particular year at San Diego and Santa Barbara.

Temperatures.

	San Diego.			Santa Barbara.		
	Max.	Min.	Av.	Max.	Min.	Av.
January	73	35	53	75	34	51
February	84	41	60	85	38	59
March	82	40	56	79	36	54
April	75	43	59	80	42	58
May	73	51	61	85	42	60
June	80	52	63	90	45	63
July	81	59	68	108	51	68
August	75	60	67	83	53	65
September ...	79	50	65	85	46	64
October	78	54	65	87	47	63
November ...	86	45	61	85	38	59
December	79	43	58	84	38	56

Rainfall.

	San Diego.	Santa Barbara.
January	3.27	12.46
February ....	.45	2.34
March	1.62	5.64
April .....	.13	.27
May .....	.07	T
June .....	.19	.16
July .....	.03	.00
August .....	.00	.03
September ...	.00	T
October	1.71	6.23
November ...	.00	T
December ...	.43	1.80

7.90 28.93 Total for year.

It will be noticed that the minimum temperature for the year, namely 35 degrees, was reached at San Diego in January, in which month the photographs were taken.

Plate No. 1 represents a vigorous specimen which stands in the grounds of the Hotel Coronado, Coronado Beach at San Diego. The photograph plainly shows that the luxuriant foliage was not affected by the low temperature.

Plate No. 2 shows an exceptionally large tree located in a public park in San Diego. From the trunk of this tree to the tip of its branches it measures thirty-two feet.

All the specimens herewith illustrated show a thoroughly healthy development uninterrupted for many years, and also indicate that the relatively sandy soil must be quite favorable.

The fact that a rubber tree has been successfully grown in a certain locality is, however, no proof that that same tree will, at the proper age, give a normal yield of rubber. Neither does it necessarily follow that such a tree must produce less rubber than it would in its native habitat, for have not the fruit trees of California, in almost all instances, brought forth better and more fruit than the corresponding trees in our eastern states? It may be argued that this comparison does not hold good because rubber trees do not grow in the east. True, but rubber trees grow in some pretty hard climates and in some pretty poor soils—under considerably worse conditions than are found in California. Careful experimenting alone will solve the commercial side of the question. The trees now existing could be systematically tapped to ascertain sufficient data as to what

amount of rubber could be expected from trees planted hereafter. Such tapping would prove too whether or not the rubber from these *Ficus* trees compares in quality with the rubber secured from like wild trees or trees cultivated in some other country.

While everything seems to point to a possible profitable new field, it would seem advisable to move slowly. There are suf-

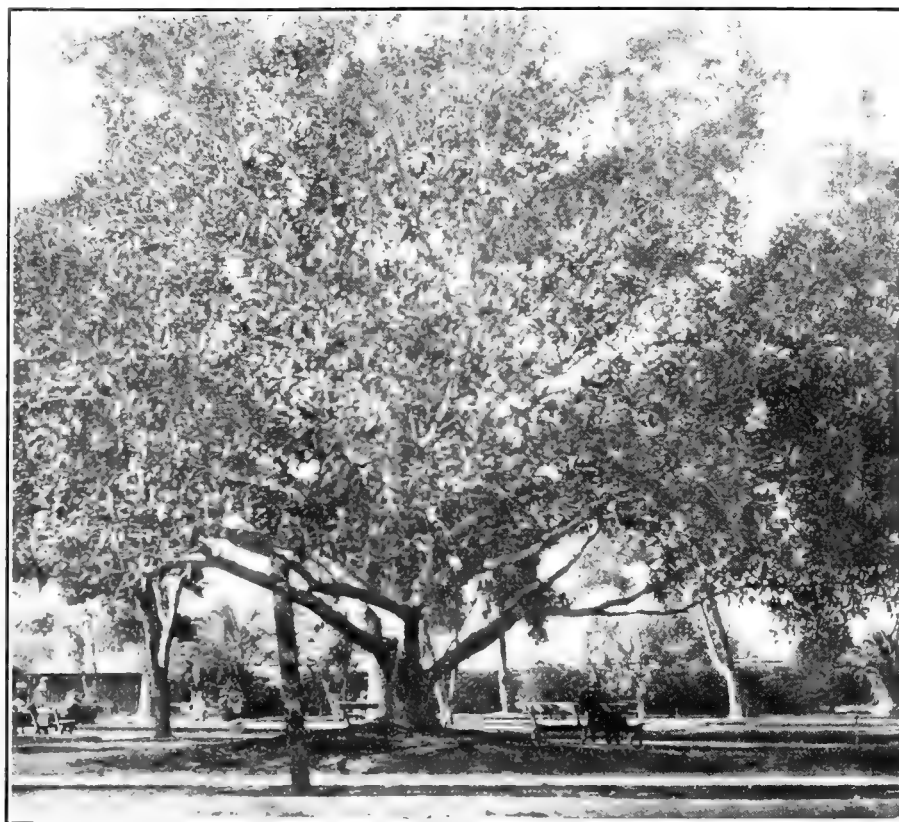


PLATE NO. 2.—*Ficus Elastica* IN PARK IN SAN DIEGO, CAL.
[Tree measures 64 feet across.]

ficient favorable data to warrant experimental plantings at such governmental experimental stations as are located in that section of our country. Such plantings should not be confined to the one tree now known to thrive there, but should include every known species and a sufficient number of specimens of each species in order to arrive at some definite and reliable information.

F. H. HUNICKE.

RUBBER AT THE ARNOLD ARBORETUM.

For many years it has been the ambition of scientists, rubber manufacturers and others to find some rubber producer that can be successfully grown in the United States, or more broadly in the temperate zone. Experiments have been made with the milk weed, the *Aesclepias Cornuti*, in Canada, the United States and Germany, with the Ekanda tuber, with the *Manihot Glaziovii* in the United States and Germany and with many other trees, shrubs, vines and herbs. So far none have been found commercially profitable, but that does not prove that they never will be.

Some time ago the newspapers far and wide announced that the great out-of-doors forestry museum of Harvard University, Arnold Arboretum, was in possession of certain Chinese rubber trees adapted to the rigorous climate of New England and that they were growing finely. Professor C. S. Sargent in 1907-9 sent, for the arboretum, an expedition to China under the leadership of E. T. Wilson, a well known explorer and botanist. Among the hundreds of specimens that he brought back was

the "rubber tree" that produced such a ripple of excitement. It is botanically the *Eucommia ulmoides*.

The specimens with which the Arnold Arboretum is experimenting were found at an altitude of about 3,500 feet on the slopes of a mountain range near Yangtse-Kiang River, in the neighborhood of Fang in the province of Hupeh. The latitude of the region is about 32, the climate and topographical conditions not unlike those of the mountainous districts of New York and New England.

Elsewhere in China the tree has long been cultivated, not for the sake of extracting the rubber, but for the preparation of a powder from the bark which is held to have medicinal virtues.

The leaves of the tree are smaller than those of the *Ficus elastica* and are shaped more like those of the elm or beech, but they have the peculiar gloss characteristic of trees and shrubs which secrete caoutchouc.

The existence of the *Eucommia ulmoides* was first brought to the attention of European scientists about 1888 by Dr. A. Henry, who sent to the Royal Botanical Gardens, Kew, some leaves, flowers and seed pods which he had found under cultivation in central China.

The specimens were examined and described in the bulletin issued from Kew by Dr. Francis W. Oliver, Quain professor of botany in the University College, London, who gave the tree its name. Further studies were made by Prof. F. E. Weiss, who became interested in the discovery that was chronicled in the "Transactions of the Linnæan Society":

"The threads of *Eucommia* consist of caoutchouc, for they are insoluble in alcohol, acids and alkalis, though they become soft when treated with ammonia. They dissolve in chloroform and turpentine and swell up with ether. When heated they melt, and they burn with the characteristic odor of burning rubber.

"From the bark the rubber can very readily be extracted. If the bark is broken in pieces and pounded in a mortar the mass can be roughly separated into two parts, one consisting of the tangled elastic threads with small bits of broken bark adhering to them, the other chiefly of bits of bark containing no doubt smaller pieces of the threads. From both parts chloroform will dissolve out caoutchouc, a larger amount naturally from the portion which consists chiefly of the threads."

Prof. Weiss's quantitative examination showed that the bark of the *Eucommia* contains about 3 per cent. by weight of caoutchouc. "Whether the bark can be made use of commercially," he concluded, "I must leave to those who are more experienced in technical matters."

After the first researches in England some further knowledge of the newly discovered rubber tree was secured in France, where it was successfully grown at the Jardin Colonial. In 1899 M. de Vilmorin, writing in response to a question from Kew, told of the hardness of the importation: "Two plants of *Eucommia ulmoides* remained uprooted against a wall in our Paris garden during the two last winters and stood uninjured through as low a temperature as 18 or 19 degrees Fahrenheit."

On its native hillsides the tree grows to an average height of about twenty-five feet. According to experience in China and at the Jardin Colonial, Paris, it is propagated more readily from cuttings than from seeds. Dybowski and Fron, who have investigated it at the French experiment station, reported:

"It is not easy to get a quantity of seed and germination seems to be slow and irregular. One sowing produced a single seedling after the lapse of six weeks, a second after five months and others later still. Fortunately cuttings seem to give better results. They will strike root at any season and give vigorous plants."

The two investigators already mentioned say of the secretion:

"The product is of a dark brown color with metallic reflections on the surface. Plunged into hot water it becomes soft again, stretches out in flakes like goldbeater's skin, and under pressure will take the impress of metal. In cooling it loses its suppleness and becomes quite hard.

"We have submitted the samples to M. Léauté, an authority on the subject, and he has been so kind as to authorize us to say that he considers it gutta percha of good quality."

Mr. Wilson, speaking of the tree, says:

"One of the most striking discoveries of this trip was a new kind of rubber tree which is hardy. We brought back a quantity of the seed of this tree, and expect that it will grow in this climate. It is hardy, and on cutting away the bark one can see the rubber lying in filaments between the fibers of the wood. The rubber cannot be obtained as in the case of the caoutchouc tree, by tapping the tree. It will not flow. The wood will have to be macerated and the rubber extracted by some mechanical process. Whether it will ever be commercially useful is impossible to say now. The tree is allied to the magnolia."

From all of the above it would seem that the tree produces, not rubber, but a sort of gutta percha. If the gum is high grade, and if, as seems probable, it is adapted for cultivation on the hillsides of New England and New York, it might well be even more valuable than if it did contain rubber.

* * *

Speaking again of the milk weed, it is possible that the small amount of rubber contained in it may some day be utilized. The stalk certainly contains an excellent fiber, and of late it is coming into favor as a food product cooked like asparagus. It has a flavor most delicious, and seems to act like asparagus as a general cleanser of the system.

THE PROPAGATION OF GUAYULE.

IN the opinion of Dr. Franes Ernest Lloyd, quoted in the October issue of THE INDIA RUBBER WORLD, the ultimate and adequate solution of the production of guayule shrub lies in the direction of cultural rather than forestal operations. Illustrating this assertion, the process of cultivation by seeds is described in detail.

The alternative system of propagation by planting has been dealt with in an interesting statement by Professor Mario Calvino, of the Central Agricultural Station, San Jacinto, Mexico.

Seeing that the propagation of guayule (*Parthenium argentatum*) by means of seeds, though apparently the most economical system, had proved more or less unsatisfactory in practice, the Central Agricultural Station of Mexico entrusted the study of the question to the Division of Horticulture. That division made use of a consignment of guayule seed, received from the Secretary of Commerce, to study propagation in that form, with the result that relatively few plants germinated.

While Professor Calvino was making these experiments Señor Salvador Creci, the young agronomical chemist, announced that he had some years ago succeeded in propagating guayule by means of ligneous cuttings. This idea was approved by Professor Calvino, and thereupon measures were taken to effect the propagation of guayule on this principle, seeing that in this way are propagated the *Anthemis* and the chrysanthemum, which are of the same family as the guayule shrub.

The Central Agricultural Station obtained plants from Coahuila, from which ligneous, seed-bearing and herbaceous cuttings were taken, for planting in boxes in the open air and also in frames beneath glass. The herbaceous and seed-bearing cuttings germinated in ten days, and the ligneous ones within 15 days in the frame and 20 days in the open air.

The cuttings thus matured were afterwards planted in nurseries, being placed 2 inches from each other in rows of 2½ inches apart. They descended from 5 to 8 inches into the soil of the nursery, which was well sifted beforehand and mixed with sand. It is considered desirable to add calcareous earth.

Upon the cuttings being planted, the nurseries should be protected with mats or blankets to prevent the sun from drying or injuring the plants. This protection likewise serves to neutralize

differences of temperature, always hurtful at this period of vegetation. In the day time, when the sun is not strong and the cuttings commence to blossom, they are uncovered in order that their growth may be invigorated by the full daylight. After 30 or 40 days the protective coverings may be finally dispensed with. When the planting has been effected the soil which is around the plants should be covered with a thick layer of leaves or cut grass and the plants with some large leaves or paper.

During the season nearest to the rains (that is to say, in July) the plants can be removed to their definite location, or otherwise it will be necessary to await the rainy season of the following year. Before the definite planting it is better to prepare some months previously the holes in which the roots will be placed. In this way the soil will become more fertile.

When rain is falling daily it keeps the plants watered, but at times when there is no rain the shrubs are watered daily by hand, about a quart of slightly tepid water being sufficient for each one. The layer of foliage or cut grass placed upon the soil prevents the latter from drying too quickly, thus helping the plants to take root.

In conclusion, it is claimed that the system of propagating guayule by cuttings is much more certain than by seeds. But, it is remarked, the advantage of the first-named system depends upon the selection and propagation of the descriptions of guayule richest in rubber. It is known that sugar beets at one time only contained 8 per cent. of sugar, while with present system of selection a yield of 16 to 18 per cent. is obtained.

WHY CUSTOMERS HAVE TO WAIT.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

CUSTOMERS frequently complain of delays in shipments, and the manufacturer is sometimes at a loss to explain satisfactorily the exact cause that makes these delays, that unquestionably do occur. In order that a better understanding may exist, we take this opportunity of calling attention to some of the reasons why some shipments may not be forwarded with the promptness that might be desired.

In the first place, the trade is acquainted with the fact that the demand for special labels and special goods is on the increase. The feeling that the jobber has, that it is wise to have his name identified with the rubber goods he handles, has grown, and the dealer who depends upon the name of a manufacturer of recognized repute to assure the public of the quality of goods he is offering for sale is constantly importuned to buy "the same goods" under the jobber's name, the theory being that when the dealer reorders he will specify the brand, and the order will go to the owner of the brand in preference to others who may be offering the same article under their own brands or under that of the manufacturer. This results in the manufacturer being forced to carry a greater number of special labels, boxes, patches, dies, etc., for various customers than ever before, and on account of the growing assortment it is impossible to carry stock for each individual customer.

The shelves may be full of regular stock, but when these same articles are ordered under special brand the factory is obliged to make up new goods, and it requires time, even when an order can be immediately taken in hand; and a greater delay when, on account of preceding orders, new ones must wait their turn for attention. It is safe to say that the largest part of delays is caused by the specials which have to be made to order.

An outgrowth of these conditions is that nearly every order for special brand goods is marked "Rush." To such an extent has this practice grown that we find ourselves unable to give the preference that rush orders are supposed to have. Our work-rooms are overwhelmed with "rush" tickets, and to heed all such

requests would leave the orders received in the usual course unfinished indefinitely.

So it happens that it is necessary to give precedence to some rush orders, and work others in as best we may, to satisfy so far as possible the demands of our trade. The buyer who fails to make an order "Rush" is deserving of attention and may suffer by the urgency of others who may not actually be in any greater or immediate need. This is neither fair nor satisfactory, but, deplorable as it is, the condition exists. The value of a "Rush" is growing less on account of its too frequent and ill-advised use.

Too frequently a buyer allows his stock to run too low before reordering, and then writes or wires, "All out, rush," etc., and is greatly perturbed by the inability of the manufacturer to give his late order precedence over older ones.

It rests with the manufacturer to decide also just what disposition is best when an order calls for assorted goods, part stock goods ready for delivery from his stock room and part special, which may require from three to four days to that many weeks to complete. If the shipment is split there is the freight or express to consider. Perhaps the order is too small to split into two shipments, and the ready stock is held for completion of special goods and then comes the complaint about delay.

Orders are booked for delivery as soon as possible or for future delivery, as may be designated. No factory can expect to depend for the work tomorrow upon orders received today; they must keep work ahead and plan to keep within reasonable distance of the mark. Let us take for illustration the following:

The factory has the work in the water bottle department laid out for ten days ahead. This does not clean up all orders on the books, but leaves, say, five or six days' work that has accumulated in the busy season, so if no more orders were received in nine days all orders would be made up. An order comes in marked "rush" for a special brand of bottle. This is given preference. It is entered in the morning, goes to the factory and the details of specifications, are looked up and entered on a factory ticket. The stock, if special, is ordered from the compounding department. All this may delay the starting of this rush order for a day. To compound, calender, cut, distribute the various parts to the maker; make, vulcanize, inspect, finish, sun and season, assort, box, wrap, prepare for delivery in shipping department, will under ordinary circumstances take from one to three weeks, according to conditions, size of order and the attending circumstances. In the meantime a hundred or more other orders are coming through, perhaps with a goodly number marked as this one was, "rush."

We know of no actual remedy, but the conditions could be alleviated by careful guarding against unnecessary delays on the part of the manufacturer and a realizing sense on the part of the buyer of the conditions which exist and the desirability of avoiding "rush" orders by anticipating his wants and allowing reasonable time for completion of orders.

MANUFACTURER.

JELUTONG RUBBER CONCESSION.—The American vice-consul general at Singapore, Straits Settlements, writes that he has received a letter from an individual who states that he has obtained a concession for the collecting of jelutong rubber over 3,000,000 acres on the east coast of the Malay Peninsula. He is anxious to ship this product to the United States and wishes to receive inquiries from prospective buyers.

Members of the Carriage Builders' National Association, who recently held their annual convention in Atlantic City, were the specially invited guests of President Frank A. Seiberling, of the Goodyear Tire and Rubber Co. at the hangar, where the airship "Akron" is being put in readiness for Mr. Verman's trip across the ocean. The carriage men were very much interested in this new form of conveyance.

The Editor's Book Table.

THE WHOLE ART OF RUBBER GROWING. BY W. WICHERLEY, F.R.H.S. Philadelphia: J. B. Lippincott. London: The West Strand Publishing Co., Limited. 1911. [Cloth. 8vo. Pp. 154. Price \$1.50.]

This book is intended as a handbook and guide in the selection and planting of those species of rubber-yielding trees which can be successfully cultivated in countries and climates other than those to which they are native. The book is primarily for the use of planters in the Middle East and Far East. While avoiding as far as possible technicalities, it goes into detail so as to be of practical value to the planter. It treats of the *Hevea Brasiliensis*, its remarkable growth, the preparation of a clearing, the best methods of planting, of weeding and cultivation, and the most successful tapping systems. The book also gives a great deal of information regarding the *Manihot Glaziovii*, and the *Ficus*. Chapters are devoted to *Castilloa*, *Funtumia*, guayule, jelutong and various other rubbers. Some space is devoted to the interesting Soya bean. For its 154 pages it gives a great deal of information and is generously illustrated.

LOS SUCEDANEOS DE LA GOMA ELASTICA Y EL GUAYULE DE Mexico. (Surrogates of Rubber and Mexican Guayule.) By Professor Julius Morpurgo. 8vo, paper; 1910; 12 pp. Secretaria de Fomento, Mexico City.

This brief treatise, brought out in German on the occasion of the inauguration of the first "Exposition of Mexican Products" at Trieste in 1908, has been deemed worthy of translation into Spanish and of publication by the Mexican Ministry of Commerce, having appeared in 1910 under its new form.

Seeing that it was written three years ago, due allowance must be made for intervening developments, which, while removing apprehensions as to a contingent scarcity of genuine crude rubber, have likewise enriched the technical literature dealing with rubber and rubber surrogates, and have confirmed Professor Morpurgo's assertion that "we now know rubber in the same way as we do lubricants, rosins, gums and other vegetable products used technically."

At the same time he remarks that rubber substitutes in fact represent a falsification rather than a substitution, and that the question of cheap rubber has not been solved by chemical products.

After dealing with the various botanical facts the author remarks that it is scarcely twenty years since attention has been given to seeking rubber in various plants other than those from which it had been hitherto derived. In this connection he refers to the success which has of late years attended investigations as to various exotic plants and notably Guayule. Two samples had been sent to the Trieste Exposition, one of which had been analyzed.

In his concluding words Professor Morpurgo remarks that Guayule deserves the most serious consideration, in view of its combining perfectly with rubber, and being fitted for vulcanization, while its resistance is superior to that of substitutes or any other surrogates.

THE COPPER HANDBOOK, A MANUAL OF THE COPPER INDUSTRY of the World (Volume 10), Compiled and Published by Horace J. Stephens, Houghton, Mich. [Board covers, 8vo., 1,902 pages.]

This is certainly a voluminous book, as the number of pages given above will indicate; nor has any attempt been made to swell the number of pages by the use of unusually large type or unnecessary leading. It is a book of solid information. Nearly 1,600 of the 1,900 pages are devoted to the description of rubber mines and mining companies in all parts of the world. There are over 8,000 of them so described; some of them of merely historic importance receiving only two or three lines, while the great Anaconda Mine, which yields $\frac{1}{8}$ of all the world's supply of copper occupies twenty-one pages.

To investors in copper stocks this information about mines and mining properties will probably be the most interesting matter in the book—but to other people, the preliminary chapters filling about 250 pages on the general topic of copper, giving its history, its geology, chemistry and mineralogy, the methods of mining, the uses of copper and the general distribution of copper over the world will prove the most interesting. The chapter on geology giving the different scientific theories that account for the presence of metals in the earth is well worth the reading, while the chapter on the uses of copper showing the myriad purposes to which this metal is put, is full of information.

Of course, its chief use is for the conveyance of electricity. In addition to power, light and traction lines, and telegraphs and telephones, copper wire is used to the extent of millions of pounds for minor electrical systems, including messenger calls, fire alarms, burglar alarms for banks and residences. Copper is being used in large quantities constantly in building construction, for roofs, and cornices, and ornamental panels, and for bronze grill work.

The publisher sends this book to any address without advance payment of any sort and subject to a week's inspection. The price when bound in green cloth covers is \$5.00, in library morocco, \$7.50.

HENDRICKS' COMMERCIAL REGISTER OF THE UNITED STATES for Buyers and Sellers. New York: Samuel E. Hendricks Co., No. 74 Lafayette street. [Board. Large 8vo. Pp. 1442. Price \$10.]

For twenty years the publishers have issued this directory, and it has grown with every year. This year it gives 124 pages of new matter not found in last year's directory, while the entire volume has been revised and made correct up to the date of issue. Some conception of the magnitude of this book may be had from the fact that the index covers 108 pages, with 400 classifications on each page. The total number of classifications is 45,000, giving a complete list of the manufacturers of agricultural, engineering, electrical and mechanical articles and those used in kindred trades and professions.

An important feature of this register is the simplicity of its classifications. All manufacturers are first classified under the general name of the special trade in which they are engaged. They are then subdivided under as many classifications as there is variety in their products. By this system the book is made particularly valuable to purchasers. There are all told 350,000 names and addresses in the book. In addition to names and addresses the book gives much information regarding the firms mentioned and the nature of their products.

CHILTON AERO DIRECTORY CONTAINING CLASSIFIED LISTS of Manufacturers of Air Crafts of All Kinds. Philadelphia: Chilton Co. [Paper. 8vo. Pp. 88 and cover. Price \$1.]

If anyone doubts the interest in this country in aeronautics he has only to look over the 88 pages of this directory to be undeceived. Aeronautics has in reality become not only a good deal of a science but also a very sizeable industry. This directory contains not only lists of manufacturers of all manner of aerial vehicles and of their parts and accessories, but it also includes lists of the aero clubs in this country, giving the names of their officers and members, lists of licensed pilots and aviators, together with the world's aviation records. It is an interesting fact that the manufacturers of aeroplanes proper fill over three pages of the directory, with over thirty names to a page. This is exclusive of manufacturers of parts and accessories. The directory shows about 15 aeronautic schools in different parts of the country.

The Third International Rubber Exhibition.

THE announcement that the third International Rubber Exposition is to be held in New York instead of London will not be in the nature of a surprise to those who know the organizing manager, Mr. A. Staines Manders. An Australian by birth, he was a resident of the United States some years ago and has ever had a sincere admiration for American enterprise. For some weeks past he has been in New York looking over the ground, and now announces that the exhibition is arranged for the last week in September, 1912, the place being the magnificent new Grand Central Palace.

In an interview given THE INDIA RUBBER WORLD, Mr. Manders defined the scope and arrangement of the exhibition very clearly.

He emphasized the feature that there would be no selling of minor objects which is so apt to accompany great shows; that there would be no side-shows; that a flat price would be charged for space, and that it would not be followed up by the provoking accessory charges that so often annoy exhibitors. The usual catalogue with its mass of advertising will be supplanted by a dignified directory of exhibits, for which no advertising will be solicited. The conference book will not be an advertising excuse—in other words, American exhibitors are not to be harried to the limit of their patience by advertising books and circulars.

Steps have already been taken to secure exhibits of crude rubber from every rubber producing country in the world.

There is also in process of formation, an advisory committee, made up of the most influential manufacturers, chemists, importers, and scientists in any way connected with the trade.

There will be notable loan exhibits, European and American; exhibits of laboratory and factory appliances, etc., etc.

There will be a series of conferences at which essays on various subjects of interest to the trade will be read.

When one considers that the United States not only uses one-half of the world's crude rubber, but manufactures much more than one-half of the world's rubber goods; when one further

considers the very general interest that the press and the people of the country are today evincing in rubber, it would appear that the exhibition was timely. That it can be made broadly informing to every trade and profession, to business organizations and to schools, goes without saying, and Mr. Manders' past record furnishes no reason to doubt his complete grasp of the possibilities as well as his ability to carry his plans through to a successful finish.

The exposition is financed by an American company, the International Exposition Company, Inc., with offices at the new Grand Central Palace, New York. Mr. A. Staines Manders, the organizing manager, has his headquarters there when in the

United States, and when in England leaves a secretary in charge. The directors of the Exposition company are men well versed and successful in exhibition work. They are: Samuel A. Miles, manager National Association Automobile Manufacturers; Richard G. Hollaman, president Eden Musee, American Company; James C. Young, secretary and treasurer, Madison Square Garden; Edward P. V. Ritter, president Merchants and Manufacturers Exchange of New York; Charles E. Spratt, vice-president Merchants and Manufacturers Exchange of New York; J. A. H. Dressel, Madison Square



THE GRAND CENTRAL PALACE, NEW YORK.

Garden, managing director—a board that is certainly equipped to handle expositions successfully.

The Advisory Committee, to which reference has already been made, will be made up of the leaders in rubber thought and accomplishment, chiefly American, and will be similar to the board that had charge of the interesting meetings and conferences held in London. This Advisory Committee is in no way connected with the financial end of the enterprise; nor are the members asked for contributions to any fund. It is purely honorary and advisory, and designed to bring the leaders in the rubber trade together for the purpose of making the exposition complete and thoroughly representative.

Synthetic Possibilities.

(By a Practical Man.)

NOW that synthetic rubber is no longer the iridescent dream of the enthusiast, what will be its effect upon the manufacture of rubber goods when it can be supplied in quantity in the world's markets, and compete with wild, cultivated and reclaimed rubber for prestige?

A careful analysis of the record made by manufactured rubber goods during the past twenty-five years, will establish as a fact that this, the latest "discovery" in the line of rubber research, is unlikely to have any appreciable effect in depreciating the value of shares in rubber plantations, or in lowering the cost of the vast list of articles manufactured from rubber. One reason for this is not far to seek.

Rubber cultivation is like other enterprises of the sort, and experience from one season to another makes clear the fact that scientific methods will result in lowering of costs, with result that plantation rubber will probably be produced at considerably under 20 cents per pound. When it is understood that the better grades of reclaimed rubber cannot now be manufactured at this cost, the synthetic dream will hardly develop the proportions of a nightmare.

It should also be borne in mind that synthetic rubber, while a scientific fact, is not as yet a commercial proposition. Until it takes its place in the arena of practical utilities it can be regarded as an interesting development of man's research, but nothing over which either investor or manufacturer need lose an hour of sleep.

Accepting its evolution or discovery as a fact, it has yet to be demonstrated that it can be produced outside the laboratory of the chemist in commercial quantities, and at a cost to compete with wild rubbers, that for example can be gathered in South America and delivered in London at a net cash per pound of 40 cents or less.

Examination of prices obtained for fine Pará rubber for ten years, 1890-1900, shows the average price to have been about 83 cents per pound, with a low price of 66 cents; for the ten years, 1900-1910, prices averaged \$1.31, made possible by the extraordinary rise in 1910 to \$2.86. The low price for this period was 70 cents. In fact, the cost of fine Pará in the New York market for the years 1888, 1889, 1892, 1893, 1894, and 1902 was 70 cents per pound and under, and the claim has yet to be advanced that rubber was being marketed at a loss. Incidentally a study of this sort reveals the profitable nature of investments in rubber shares, and one no longer wonders at 100 per cent. annual dividends.

When, further, we remember that there was imported into the United States alone for the first six month of this year, not less than 91,000,000 pounds of crude rubbers, it can be readily inferred that additions of synthetic or any other sort of rubber to affect prevailing values of crude would have to be upon an immense scale.

To produce such additional supply even approximately, would involve the expenditure of vast sums for the equipment of factories, and capital for an enterprise of such proportions would not be subscribed by far sighted financiers until they had satisfied themselves of the coincident advantages likely to offset the rapid enhancement in cost of crude material that would have to be used in the manufacture of synthetic rubber, and which would increase its cost of production far beyond the present academic estimates.

The extreme high prices obtainable for crude rubbers during the past two years are not chargeable to the law of supply and demand, but to artificial conditions. If the best wild rubber were

to remain at \$2.75 to \$3.00 per pound for the next decade, then the matter of profits in the manufacture of synthetic would be greatly simplified. But the same grade that sold for \$2.86 per pound in April, 1910, has since then been purchased under \$1.00 per pound. Manipulators may come and go, prices for crude rubber may rise and fall, but the great industry of the manufacture of rubber goods goes ever onward with ever increasing momentum.

The experience of the past two years has been invaluable to the manufacturer. He has developed from experimental, rule-of-thumb compounding, into scientific compounding. He has discovered undreamed of values in rubbers that came to him from places far removed from the favored and famous forests of South America. He has not lost his respect for Pará, but has developed an abiding interest in other sorts. Consequently exploiters of synthetic rubber may count on well-intrenched competition as soon as their product appears on the market.

Synthetic rubber as an admitted scientific fact, has yet to establish its position as a competitor with wild and cultivated rubbers in the matter of quality.

What is its greatest elongation without breaking?

What is its recovery from standard stretch tests?

What are its insulation qualities?

All these and many more questions have yet to be answered, and until they are and synthetic rubber can qualify point by point with fine Pará, there is no danger of rubber becoming a "drug" on the market.

If therefore, it should transpire that synthetic rubber (however valuable a position it may attain as an adjunct to the rubber manufacturing industry) fails to mark up to established standards for "high grade," it stands face to face with an equally perplexing competitor in the form of low grade rubbers from Mexico, South America and Africa; a great host full of bark and sand it is true, but of proven value for many purposes, with low shrinkages, and net costs that are attractive, and likely to prove troublesome to the exploiters of any sort of scientific rubber.

Finally, that branch of the rubber manufacturing industry that redeems or reclaims rubber that has once been used, must be considered in its relation to the possible commercial possibilities of synthetic rubber.

Reclaimed rubber is an item of significant importance in the cost of a very wide range of articles made from rubber. When it is considered that the best grade of "reclaimed" contains 90 per cent of rubber, and sells at prices ranging from 50 cents to 75 cents a pound, it is a factor that must be reckoned with, especially in view of the possibility that the manufacture of synthetic may bring about so great a lowering in the cost of manufactured goods that reclaimers will profit proportionately in the low values of scrap rubber.

It is safe to conclude, however, that the projectors of the new synthetic rubber will not venture to manufacture in commercial quantities without first satisfying themselves that their enterprise will be profitable in proportion to its importance, the risk involved and its permanence. In the meantime we will continue to make the same good goods at the same old stands in constantly increasing quantities, pocket the profits and trust to luck.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

A New Use for Pontianak Resin.

EVER since the extraction of rubber from Pontianak has assumed any commercial importance there have been many attempts to find an outlet for the tons of residual resin that have accumulated. A small market was formed with the manufacturers of roofing papers. There was also an attempt to utilize it in lieu of chicle for chewing gum. It remains for Carleton Ellis, however, of Montclair, New Jersey, to adapt it to a use which would appear to be very large. Under date of August 1, 1911, Mr. Ellis was granted two patents, the first 999,493 covers the waterproofing of concrete with Pontianak resin. His second patent of the same date, 999,708, which is for a paint or priming for concrete, may have very far-reaching results. To begin with, Mr. Ellis is a chemist and an expert on waste resins. He therefore was able to turn the untractable unsaponifiability of Pontianak to good account by producing a paint vehicle which is not attracted by cement alkali. In other words, he gives something so much better and more lasting than linseed oil that its use is assured. His essay on the subject, although addressed to the examiners of the United States Patent Office, is so complete that we quote:

"Concrete made from Portland cement is ordinarily rather porous and lacking in waterproof qualities; also it has a grayish brown tint as usually prepared which, for certain purposes is not desired. The cement used in the concrete contains a considerable amount of alkali in the form of free lime, or lime in loose combination; also potash or soda in basic form. In addition, bodies of a more or less water soluble nature are present and these compounds, under the action of moisture, tend to migrate from the interior of the concrete mass and appear on the surface thereof as a white efflorescence known by the artisan as 'saltpeter' or lime stains. These are very unsightly and often greatly injure the appearance of buildings, such as dwelling houses constructed of solid or monolithic concrete and stucco. Moreover, the surface of concrete often undergoes a slight disintegration, known as checking, which renders the surface unsightly, so for these and other reasons, concrete surfaces frequently need to be painted.

"The basis of ordinary paint, linseed oil, is not adapted for use in the painting of concrete. Linseed oil, being a readily saponifiable oil, is affected by the alkalis of the cement and perishes rather rapidly. With the idea of overcoming these difficulties, proposals have been made to treat the surface of the concrete, prior to painting, with an acid, or neutralizing wash, such as aqueous solutions of hydrochloric and sulfuric acids, zinc sulfate, ammonium carbonate and the like. In addition to the time required to apply such a wash, the work has to be delayed in order to permit the water to dry out before the paint is applied and the surface of the cement, because of such drastic acid treatment, is oftentimes more or less disintegrated, the bonding of the cement is in a measure destroyed, especially at the surface, leading to scaling and checking. This action is enhanced by the action of frost in winter and may lead to a very great deterioration of the painted surface. Then too, there is always danger that alkalis from the interior of the cement mass may find their way to the surface of the mass and affect the paint coating by saponifying action; for the neutralizing action of the acid wash is only superficial at best, leaving the interior of the cement with its full quota of unneutralized alkali. For this and other reasons linseed oil has not found favor in the painting of concrete.

"Solutions of ordinary varnish gums, such as Manila or kauri copal in turpentine and other solvents have also been suggested, but these also are saponifiable to a very considerable degree and are open in a large measure to the same objections noted in the case of linseed oil.

"My invention has to do with paint vehicles which essentially

are substantially free from binding materials affected by the alkalis of cement, and comprises the use of resins, or resinous materials extracted from rubber gums and in particular the rubber gum known as jelutong.

"Different qualities of jelutong are known in the trade, according to the source from which they are derived, as Palembang (Sumatra), Pontianak (Borneo), Sarawak and the like. Commercial jelutong is obtained by coagulating the latex derived from the jelutong tree. Commercial jelutong contains roughly about 70 per cent. water, and 30 per cent. solid material, the latter consisting of about one-third rubber and two-thirds resin, so that for about each pound of rubber recovered, about two pounds of resin are obtained. The resin has found but few uses, and has constituted a waste, or by-product of considerable magnitude.

"The process of deresination as now practiced by the aid of solvents, leaves the resin in the form of a mass of white particles, or friable lumps, usually containing some moisture and the method of treatment for rendering this resin suitable as a basis for concrete paint vehicles, or oils, will shortly be described.

"Jelutong resin, as for example, Pontianak, is practically unsaponifiable, as I have indicated in U. S. Letters Patent No. 900,687 of October 6, 1908. While the resin after melting, is similar in appearance to ordinary colophonium, it is widely different chemically and because of this, unfit for the many uses to which colophonium is adapted. Thus, because of its unsaponifiability, Pontianak rubber resin cannot be used, as is rosin, in the manufacture of soaps, etc.

"Chute has called attention to the difficulty of utilizing Pontianak rubber resin (INDIA RUBBER WORLD, July 1, 1909), and has given some data as to the properties of this resin. His data as to the solutions of this resin coincide to a considerable extent with my own observations, except that no mention has been made by Chute of the instability of many of the solutions of resin. When first prepared, clear solutions are readily obtained, as, for example, by melting one part of Pontianak rubber resin and thinning with two parts of petroleum naphtha. Such a clear solution is, however, supersaturated and on keeping for a few weeks or months or even longer, separation of the less soluble portion occurs spontaneously and the former clear solution becomes largely a grayish paste, or solid mass. Most common solvents act in this way as the following tabulation indicates: For example, a clear liquid mixture made from equal parts of Pontianak resin and pine oil, on standing for a considerable period becomes solid; with one part resin and two parts pine oil, it is about one-half solid; with one part resin and one part each of pine oil and solvent naphtha, nearly solid. Nearly solid products are produced on standing by mixing two parts of Pontianak resin with one part each of pine oil and heavy benzin, two parts of the resin to one part pine oil and two parts of heavy benzin, also two parts resin to two parts each of these solvents give like results. Light benzin (varnish maker's benzin), with pine oil in varying proportions, acts in the same way. Equal parts of the resin and spirits of turpentine solidify as do mixtures composed of three and four parts of turpentine to two parts of resin. Mixtures of turpentine, with light and heavy benzin behave in a similar manner. Mixtures of pine oil, solvent naphtha and heavy benzin are but little better as solvents. Good quality solvent naphtha alone, is somewhat better. However, two parts of the resin, with one and one-half, two and two and one-half parts of ordinary crude solvent naphtha solidify completely, three parts of solvent naphtha is nearly solid, while three and one-half and four parts of the solvent yield three-quarters solid and one-quarter liquid. Two parts resin to three

parts varnish maker's benzin is two-thirds solid, and about four parts of the benzin, gives about one-half solid material. Benzol has better solvent properties. With two parts of Pontianak resin to four or five parts of benzol the solutions remain clear. Equal parts of resin and benzol, on the other hand, become solid. Mixtures of solvent naphtha and varnish maker's benzin often have a similar solidifying action. Mixtures of benzol and benzin with the resin are somewhat unstable. Russian turpentine has better solvent properties than ordinary spirits of turpentine, but in the course of time, solidification sets in with solutions of moderate concentration. Guayule resin is permanently soluble in the solutions mentioned and seems to exert some influence in maintaining the Pontianak resin in solution.

"The foregoing mixtures, which segregate solid material do not dry properly, especially when exposed in moderately thick films. If a very thin film is allowed to dry, say on a glass plate, it may become hard, but is usually cloudy, or 'frosted.' Thicker films usually behave differently as solidification or separation of the material held in solution in a supersaturated condition is very liable to occur, forming a pasty sticky mass which dries very slowly and apparently never attains any very great degree of hardness.

"There is great uncertainty respecting the permanency of such solutions in storage. The solidification may occur in a few days or the solutions may retain their mobility and clarity for a long time to finally coagulate and become worthless as finish coating material. The various factors which enter into the phenomena of spontaneous coagulation have not as yet been fully determined by me and I content myself for the present simply with calling attention to these observations.

"In the preparation of finish coatings, such as paint oils, varnishes and the like, concentrated solutions of resin are often required. For example, making rosin varnish known as the 'gloss oil' type, five or six parts of ordinary rosin are used to four or five parts of benzin. With Pontianak rubber resin, ordinarily such concentrations would be impossible to secure.

"In the manufacture of varnish from hard resins, it is quite customary to heat such resins to a temperature of 500 to 600 degrees F. in order to render them more suitable for combination with oils, etc. But in the case of Pontianak resin, it has been supposed that a temperature of 400 degrees could not be exceeded, owing to the formation of acetic acids and other supposedly injurious bodies. I have found, however, that this is not the case, but that it is entirely feasible to heat Pontianak resin to a temperature of even 600 degrees, or higher, thereby producing a solution which is readily soluble in ordinary volatile thinners, customarily used in varnish manufacture. In order to obtain such a high degree of solubility, I find that by heating the resin for about an hour at about 600-620 degrees F. gives a loss in weight of about 20 per cent. and suffices to render the product readily soluble in thinning mediums, such as benzol benzin and the like. In fact, by such treatment it becomes possible to make a solution in say benzol for example, of just as high a concentration as that obtained in ordinary rosin gloss oil. This is a very important consideration, because a concentrated solution is ordinarily required in coating materials and the dilute mixtures obtained by the solutions of the raw Pontianak resin in volatile thinners do not give for many purposes the requisite degree of concentration. Another important advantage is that such concentrated solutions derived from the employment of resin heated to 600 degrees or thereabout as above indicated, is the very noticeable mobility of these solutions. Ordinary gloss oil, containing 50 per cent. or 60 per cent. of rosin is usually relatively thick and rather viscous, so that when worked out under the brush, considerable drag is experienced and brush marks often appear. In the present case, it is possible to secure relatively thin solutions of unusually high concentration, which work with very great freedom under the brush. While ordinary gloss oil is destroyed in a short time by the action of

the sun and rain, the Pontianak resin, treated in this manner, shows an unusual degree of resistance to atmospheric influence.

"Solutions of the resins, suitable as paint vehicles, may be made in the following way: 125 lbs. of Pontianak resin is heated for one hour at about 600 degrees F., giving a loss of about 25 lbs. The molten resin is cooled to about 300 degrees F. and thinned with 90 or 100 lbs. of benzol. Or a mixture of equal parts of benzol and benzin may be used for thinning, likewise other common solvents, such as turpentine, wood turpentine, texene, solvent naphtha, toluol and the like may be employed, it being possible even with solvents, such as texene, which is not as powerful in its solvent properties as solvent naphtha or benzol, for example, to secure solutions of fairly high concentration. The solutions made in this way may, if desired, be incorporated with drying oils and driers, including, fish, linseed, china wood, corn, and soya bean oils. Also manganese and lead oleate and linoleate and guayule resin may be incorporated, the latter especially if a very high gloss is desired.

"Instead of heating at 600 degrees for one hour, the resin may be heated at a somewhat lower temperature for a longer period, as for example, at 550 degrees F. for two hours or 500 degrees for four hours. If, however, the resin is not heated above 400 degrees F. the desired degree of solubility is not secured, nor the desirable properties of mobility and free operation under the brush. The heat treatment may be somewhat shortened by blowing air through the resin, or even by treatment with superheated steam, or inert gases, which tend to accelerate the removal of the undesirable and insoluble constituents, or causes changes in these which brings about the desired properties above mentioned.

"When run at a temperature of 600 degrees or higher, the resulting solution is somewhat dark in color, and this may be bleached, if desired, by filtration through fullers' earth or bone black, or by treatment with chemical bleaching agents, such as chlorin and its compounds having bleaching properties, sodium peroxid, ozone and the like.

"Owing to the fact that at temperatures above 400 degrees deep seated changes take place in the resin, rendering it a compound seemingly having almost entirely different properties, it would be expected that organic acids would develop which would give the composition a marked saponification equivalent. I find, however, that this is not the case, although if the material is heated at 500 degrees or 600 degrees F. with hydrated lime for a long period, a small quantity of the lime is taken up by the resin apparently, resulting in a product which is slightly harder than the unlimed resin. The changes which take place are, however, so far as can be judged, those of polymerization and depolymerization, so that the very desirable quality of unsaponifiability may be caused to remain substantially unchanged.

"The treatment of the resin at high temperature may take place if desired at reduced atmospheric pressure, the temperature and length of heat treatment under such circumstances, depending upon the amount of reduction of atmospheric pressure prevailing.

The oil secured, for example, by heating the resin at 60 degrees F. for one hour under ordinary atmospheric pressure through thinning with a mixture of equal parts of benzol and benzin after the heat treatment, makes a paint oil or vehicle which may be used as a basis for pigments and colors of all descriptions, and in itself yields a paint oil of surprising durability. Such a product mixed with say soya bean oil in the proportion of two parts of the resin solution to one part of the oil and the addition of a small amount of Japan drier, yields a very useful paint oil, and as stated, other drying oils may be used if desired, wood oil, however, being open to the objection that it tends to oxidize more or less in such solutions, when standing in containers, especially partly filled barrels, etc., and gelatinization brought about by such changes, makes it not as useful as certain other oils mentioned, which are free from this objection, as for example linseed oil and fish oil.

"In applying this composition to concrete, for which purpose it

serves as an excellent paint on account of its substantial unsaponifiability, I prefer to not introduce any drying oil, but use the simple solution of run resin. There is no objection, however, to the employment of pigment ground in a drying oil, as the small percentage of saponifiable oil introduced in this manner is not detrimental, because when applied to the concrete this oil is so largely surrounded and embedded, as it were, in unsaponifiable material, that the alkalis of cement do not affect it in the usual way. When a flattening effect is desired on the concrete work for example, the addition to the oil of the aluminum soap of Chinese wood oil, containing aluminum eleomargarate, may be used to advantage in an amount of 5 per cent. or 10 per cent., and if desired, 2 per cent. or 3 per cent., for example, of ceresin wax may be introduced.

"The resin run at 600 degrees F., more or less, as above described, may be mixed with a quantity of the raw resin and a solution made of this which affords an excellent waterproofing medium for porous stone, brick and concrete, and is usually of lighter color than the solutions run of resin alone. Furthermore the presence of the run resin seems to lend stability to the raw resin in solution rendering the latter less liable to separate when exposed to low temperatures. For such waterproofing applications, a solution of raw resin, one part in two parts of benzol may be mixed with a solution of equal parts of the run resin and benzol. Three volumes of the raw resin solution to one volume of the run resin solution is a very satisfactory proportion. Or the composition may be made by heating 125 lbs. jelutong resin for one hour at 610 degrees F., adding 200 lbs. more resin and when this is melted, 75 gal. to 100 gal. of benzol, or a mixture of benzol and benzin are introduced."

INDIA RUBBER GOODS IN COMMERCE.

OFFICIAL statement of values of exports of manufactures of India-rubber and gutta-percha from the United States for the month of August, 1911, and for the first eight months of five calendar years:

MONTHS.	Belting Packing. and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
August, 1911	\$191,637	\$247,953	\$653,213	\$1,092,803
January-July	1,290,415	927,644	4,162,495	6,380,554
Total, 1911	\$1,482,052	\$1,175,597	\$4,815,708	\$7,473,357
Total, 1910	1,431,382	1,347,749	3,798,848	6,577,979
Total, 1909	1,164,699	872,074	2,678,534	4,715,307
Total, 1908	813,383	927,084	2,371,374	4,111,841
Total, 1907	920,715	908,440	2,702,777	4,531,932

The above heading "All Other Rubber," for the month of August, 1911, and for the first eight months of the current year, includes the following details relating to Tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
August, 1911 .....values	\$251,262	\$58,615	\$309,877
January-July	1,464,060	337,130	1,801,190
Total, 1911	\$1,715,322	\$395,745	\$2,111,067

NEW LASTS IN RUBBER FOOTWEAR.

The United States Rubber Co. has just distributed a series of ten different eight-page folders for ten of its different brands, the folders being entitled "Descriptions and Illustrations of Styles," made respectively by the American Rubber Co., The Joseph Banigan Rubber Co., Boston Rubber Shoe Co., L. Candee & Co., Goodyear's India Rubber Glove Manufacturing Co., Goodyear's Metallic Rubber Shoe Co., Lycoming Rubber Co., Malden Rubber Shoe Co., Meyer Rubber Co., and the Woonsocket Rubber Co. These folders, which are 4 x 8 inches in size, illustrate about a dozen different lasts, giving side views and sole views. Most of the illustrations shown are of sandals, croquets and the high-vamp storm rubber; though some arctics, clogs and foot-

holds are shown. These folders are intended chiefly to inform the trade of new lasts designed since the last catalogues were issued. There is sufficient uniformity in the character of the goods displayed in the different folders to show that in a general way the new lasts have the high nob toe generally known as the "Rino" toe and the high heel in both men's and women's shoes.

The four illustrations given herewith show the side view and the sole view of the men's "Rino" and the women's "Elsie"



SIDE AND SOLE VIEW OF THE WOMEN'S ELSIE LAST.

in the Glove brand, and sufficiently illustrate the general nature of the goods described in these folders. The "Rino" last is made for the men's broad high-toe and high-heel shoe, generally known as the "Pug last" in leather shoes. The "Elsie" last has



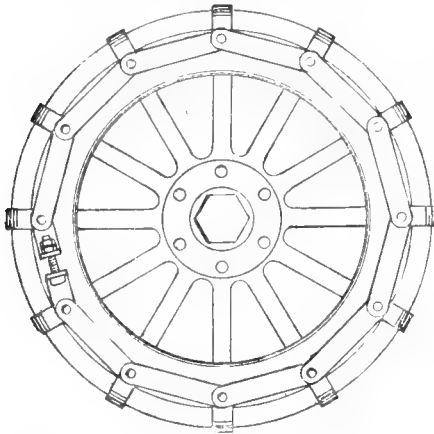
SIDE AND SOLE VIEW OF THE MEN'S RINO LAST.

an extremely high heel and toe to fit the ultra fashionable leather creation usually known as the "Stage" style. The "Rino" toe is a model for which there is at present the greatest demand as the leather shoes affected by men, especially in the west and northwest, are made with high nob toe and high heel. The "Elsie" last has about the same characteristics in the women's line as the "Rino" in the men's line. The demand for this model is also very general.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

NON-SKID FOR SOLID TIRES.

THE solid tire, particularly on heavy road trucks, is just as likely to skid as the pneumatic, and oftentimes with disastrous results. Quite a variety of non-skidding devices have



THE TAYLOR TRUCK TIRE GRIP.

verse steel bars which have ridged outer faces. The undersides, however, that come in contact with the tire are smooth and flat. The chain can be applied easily and quickly, and it is said, does not in any way injure the tire.

Another type, this time the invention of an American, consists of flat strips of iron bent over the tire and secured by anchor rings. This is practically a flat chain made up of short links. This non-skid hugs the tire very closely, and while it is flexible and easily applied does not slip, nor does it cut into the tire when in use. It is the invention of Leonard B. Gaylor, Stamford, Connecticut.

There are many other devices, such as, for example, the lion grip, of which there are three sections that attach at equal distance around the periphery of the wheel and held in place by bolts. There is also the drag-on non-skid device which is not dissimilar to that furnished by the Saurer Company.

The great rubber manufacturers who go largely into solid tires are also producing special treads that are being supplied to a considerable degree.

CRUDE RUBBER AND BUFFALO SKINS.—A report from an American consular officer in Spain states that he has received a letter from a local business man requesting the names of American exporters or dealers in crude rubber for use in manufacturing rubber goods. He desires to import this article, and is also in the market for buffalo skins. Correspondence should be in Spanish.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

INTERESTING FACTS ABOUT TIRES.

THE Automobile recently sent out a circular to the tire manufacturers asking 26 different questions. Here are some of the more important of them, together with the answers given by the B. F. Goodrich Company, and others:

The question, "What is the proportion by weight of rubber in tires?" is answered by the statement that it is 75 per cent. "The proportion by weight of cotton fabric" is given as 25 per cent. "What is the effect of speed rather than weight on tire life?" is answered as follows: "Excessive speed undoubtedly destroys more tires than excessive weight; that is, we believe that continuous high speed is more of a detriment to tire life than large weights carried at a very slow speed." Another manufacturer replies that if the tire is properly inflated it suffers more from speed than from weight, but if it is not properly inflated, the weight does rather more injury than the speed. "What is the greatest abuse to which tires are being subjected at the present time," is unanimously answered by most of the manufacturers as being lack of proper inflation.

"What is the effect of grease on floors on tire life?" brings the reply, "Bound to rot the tire." There is a unanimity among manufacturers on that point also. They seem to agree likewise as to the affect of mud and water on tires, namely, that mud and water do not seriously affect the tires, and that they last longer in a moist atmosphere than in a very dry one. Answers to the question "What is the effect of heat and cold on tire life?" show that there is very little difference of opinion in that matter. Heat tends to soften the rubber and is more injurious than cold, except extreme cold, which hardens the rubber and tends to make it brittle. There seems also to be but one opinion as to the extent of rim cutting, namely, that it is growing less and less, and is no longer a feature of any great importance.

DOES IT PAY TO REPAIR TIRES?

WHETHER it pays to repair tires is a question that must be answered in each individual case. New tires with slight injuries certainly are worth repairing—badly worn tires with severe injuries certainly are not. Affording some light on this subject a table is given below showing the charges of one of the repair garages in Greater New York.

AUTOMOBILE TIRES AND TUBES REPAIRED AND VULCANIZED.

Size of Shoe.	Re-Treading	Size of Shoe.	Re-Treading.
28 x 3	\$9.50	32 x 4	\$14.75
30 x 3	10.25	34 x 4	15.75
28 x 3½	11.25	36 x 4	16.75
30 x 3½	12.25	34 x 4½	18.75
32 x 3½	13.00	36 x 4½	20.00
30 x 4	14.00	34 x 5	21.00
		36 x 5	22.75

SECTION REPAIRS.

Two to Six Inches.

2½-inch tire.....	\$2.50	4-inch tire.....	\$4.00
3 " "	3.00	4½ " "	4.75
3½ " "	3.50	5 " "	6.75

When the repairs are over six inches, add the following prices to the above:

For 2½-inch tires.....	\$1.50 to \$1.25
" 3 " " .....	.50 to 2.00
" 3½ " " .....	.75 to 2.75
" 4 " "	1.00 to 4.00
" 4½ " "	1.00 to 4.50
" 5 " "	1.25 to 5.50

Inner tube punctures from 35c. up.

Valve bases, 75c.

New valve, American, 90c. to \$1.10, according to size.

MORE ABOUT EXCHANGE LISTING.

TO THE EDITOR OF THE INDIA RUBBER WORLD: In your September number you had a couple of charts showing the fluctuation of wool and cotton, and the wool chart showed the steadier line. Now, these charts, as a rule, are misleading unless one happens to be familiar with conditions governing the various articles. As you know, we happened to have an abnormally short crop of cotton, along with a boom period, while the production of wool happened to remain fairly steady covering this particular period.

I enclose chart showing range of values of oleo stearine in New York and prime steam lard in Chicago from January 1, 1905, to date. The chart shows the high values on both articles, and both are brought right up to the end of last week, showing the market at the finish at Saturday's figures. You will note that the oleo stearine has been subject to wider fluctuations all the way through. Both articles started at about the same price in January, 1905, and oleo stearine reached the high of 19 cents, while the high on lard was 14.60 cents. This chart shows, what I have maintained, that an article without an official market is subject to wider fluctuation than one with the benefit of an open market.

Of course, the general public knows very little, practically nothing, about stearine or its range of values, while any one who follows speculative markets at all will be apt to be familiar with the fluctuations in lard. The general newspapers, of course, give the official markets and comment on them, while the chances are that no one outside of the business knows or cares anything about the fluctuation of oleo stearine.

My sketch is a little crude, as I had to do it very hurriedly, but you can rely on its being correct. The lard prices are taken from the official records of the Chicago Board of Trade. The oleo stearine prices are taken from private records here, as we have no official records.

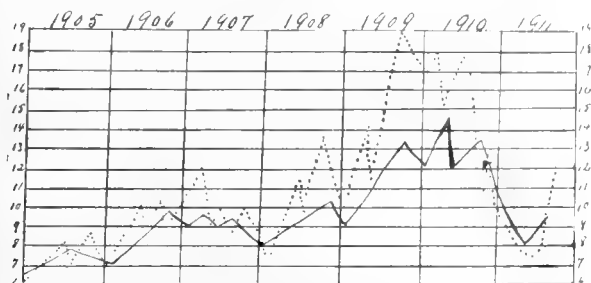


CHART SHOWING FLUCTUATIONS OF LARD AND OLEO STEARINE.

Solid Line Indicates Lard.

Dotted Line Indicates Oleo Stearine.

I send also chart showing fluctuation in short rib sides on the Chicago Board of Trade, with an open official future trad-

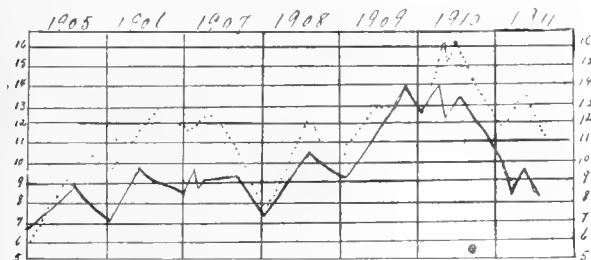


CHART SHOWING FLUCTUATIONS OF SHORT RIB SIDES AND HAMS.

Solid Line Indicates Short Rib Sides.

Dotted Line Indicates Hams.

ing market; also S. P. hams, without an official market. Both are the product of the hog, and, of course, there are two sides and two hams to every hog and no more. I have taken just

the high of each month, beginning January, 1905. The chart was compiled from the official records of the Board of Trade, Chicago, and so far as comparisons go I cannot think of a better or fairer one between commodities, one with and the other without an official market. The charts speak for themselves. Yours very truly,

ARTHUR DYER.

FROM AN ENGLISH INVENTOR.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I have a number of valuable inventions in connection with india-rubber that I should like to bring to the attention of manufacturers. For example, my patent for devulcanizing scrap rubber is an improvement in machinery, whereby I propose to devulcanize in fourteen to sixteen hours. I place rubber in pan, and after fourteen hours steam is shut off and ingredients which have been used for destroying the fabric are taken away. Then all impurities are washed away, while the rubber remains in the pan, so that neither solution nor impurities go into the sheeted stock. I save 35 per cent. in ingredients, 25 per cent. in steam, 50 per cent. in labor. The pan is arranged so that it fills and empties by an automatic arrangement. During its working hours, at each revolution, the condensed water from the jacket is let out by self-acting arrangement, so that no one is needed to give attention while in operation.

Another invention for this work is the cleaning and purifying of sheeted stock, taking out metal, brass and produce, in the same time, over three times more stock than the best forcing machine made.

Again, an invention for taking beads from motor tires.

And one for making substitute by machinery.

I have brought out a number of inventions suitable for all branches of the rubber-heel trade.

Making moulds by machinery, according to the method at present employed in England, I can save 90 per cent.

Machinery for punching from sheet rubber, the dials ready for moulds.

A patent device for buffing all sizes of heels.

An apparatus for preparing crude rubber, washing away all impurities. The steam does not come in contact with the material, which is better for sheeting by this method, saving about 7½ per cent. over any preparatory method I have yet seen.

An invention for lifting and conveying tire moulds in and out of vulcanizing pan, which is needed in every rubber works where tires are made.

Hoping that these details will enable you to arrange an article for your journal which will prove interesting to some person or persons.

CHAS. BLAIR.

Heaton Morris, Stockport, England.

CANADIAN IMPORTS OF CYCLES AND MOTORS.

THE following statistics, for the three months April-June, for three years, are supplied by the Canadian department of trades and commerce:

BICYCLES.			
	1909.	1910.	1911.
From Great Britain.....	\$10,325	\$38,927	\$59,639
From United States.....	12,921	19,480	27,817
From Other Countries.....	.....	43	.....
Total	\$23,246	\$58,450	\$87,456

AUTOMOBILES.			
	1909.	1910.	1911.
From Great Britain	\$35,372	\$65,406	\$111,032
From United States.....	412,317	1,273,057	2,080,592
From France	35,495	35,473	13,280
From Other Countries.....	1,029	5,451	.....
Total	\$484,213	\$1,379,387	\$2,204,904

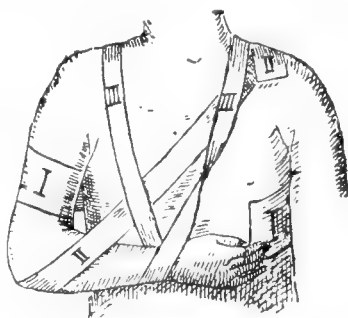
THE USE OF RUBBER PLASTER BANDAGES.

THE old sticking plaster used by surgeons 30 years ago, and still popular as a household remedy when the children cut their fingers, has been very largely supplanted in surgical work by india-rubber adhesive plaster.

The making of adhesive plasters of india-rubber began in the United States about 30 years ago. Soon after—or to be

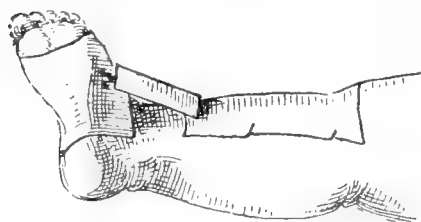


No. 1. FINGER BANDAGE. more explicit, in 1884 the manufacture of rubber plasters was taken up at the Helfenberg Chemical Works in Germany, where it has continued to the present time and where these plasters are constructed in a very careful and scientific way. The india-rubber adhesive plasters for the bandaging of wounds are now used quite extensively in surgical work, where the wounds to be covered are no longer subject to ulceration. The plaster is never applied solely by itself, for the wound is first covered with a small piece of sterilized gauze. The rubber being air-tight and water-tight, makes it possible to form a bandage protecting the wound from outside infection. The rubber bandage has these advantages among others, that it takes up only a little space, and only slightly interferes with the use of the limb. For these reasons it is very frequently used as a finger bandage, where some strips are laid lengthwise across the top of the finger, and then covered obliquely by other strips as shown in the accompanying cut.



No. 2. BANDAGES FOR BROKEN COLLAR BONE.

The use of adhesive plasters for the purpose of fixing bones and joints in certain positions has become general. The accompanying cut, No. 2, shows the accepted form of bandage in cases of fracture of the collar bone. Strip No. 1, is designed to obviate the forward dislocation of the shoulder. Strip No. 2 serves to prevent the collapse of the shoulder. The middle part of this strip is placed under the elbow of the arm on the injured side, and its



No. 3. BANDAGE FOR CLUB FOOT.

two ends are brought together on the uninjured shoulder. Strip No. 3 prevents the arm from falling inward. In fracture of the ribs a broad strip of rubber plaster is applied from the side to the breast-bone over the entire place. The rubber bandages serve an excellent purpose in cases of distension and contraction of the stomach, as well as acute cases of stomach inflammation.

The rubber bandage is also exceedingly useful as a preventative of ruptures of the muscles where such a tendency exists. By its use, workmen whose occupation exposes them to extreme physical strain are saved from the effect of this great strain. As compared with abdominal belts rubber plaster bandages have the advantage of being felt very little when worn.

The rubber bandage is of great service in the treatment of club-foot, because it can be applied within a few days after the birth of the child, and without injury to its general health. At this age the use of the bandage is very effective, because the formation of the bones of the foot has not as yet made

much progress, and a moderate pull is sufficient to accomplish the desired result.

In addition to the instances cited above there are scores of others in which the rubber plaster bandage is of utmost importance and value in assisting surgeons in their work.

RUBBER MUSCLES IN INFANTILE PARALYSIS.

FOR a long time many of the leading doctors in this country have devoted themselves to the problem of discovering the nature and cause of infantile paralysis, and the further problem of finding some cure for it. It is now believed, after very careful researches, that it is caused by a germ which enters the system through the nose; and while they have not yet discovered a cure for this terrible and rapidly increasing disease, they have discovered sundry means of checking its progress and alleviating its severity.

The latest remedial agency has been discovered by a Buffalo doctor, and consists of supplying the patient with rubber muscles to assist the affected muscles in doing their proper work, and in preventing the limbs from becoming deformed. These rubber muscles consist of strips cut from a rubber dam, the strips being about an inch in width, in some cases a little wider, according to the location for which they are intended, and being in length from four or five to eight inches. The ends of these strips are fastened to the patient by pieces of adhesive plaster, that are first very firmly attached to the rubber, and then extended four or five inches over the skin so that they will hold firmly.

The strips of rubber, which the doctors call "rubber muscles," are used over various joints—the knee, the ankle, the wrist, the elbow and shoulder. They extend about the same length as the particular muscle they are intended to relieve and assist, one end of the strip being fastened over the origin of the muscle, the other over the insertion. The claim made by the inventor of this treatment is, that the rubber muscles stimulate the normal muscular activity and act as a constant force. In this way the lost power is temporarily supplied until the muscles that are paralyzed or affected have recovered. The use of these rubber muscles does not interfere with any other prescribed treatment, such as passive motion, massage, or electrical application, nor does it interfere with clothing or bathing, and the treatment is not only very simple but continuous. It is not intended to be used in advanced cases; but employed before the paralysis has reached an advanced stage of development, this treatment has been found very effective.

RUBBER MILLS VS. GYMNASIUMS.

If young college aspirants for athletic honors were advised to go to work in a rubber mill instead of spending several hours a day in the college gymnasium, they would probably scorn the advice; but it seems that some departments of rubber mill work have proved good training for athletic success. A member of the Diamond Rubber Company's staff says: "At present there are several well-known athletes, wrestlers and boxers working for the Diamond Company; they say it causes them to feel as 'fit' as when training in a gymnasium." These particular athletes, however, work in the tire making department, where there is a constant demand for a great deal of muscular expenditure. Given plenty of fresh air and properly regulated temperature, there is really no reason why making tires should not develop the muscles quite as well as swinging on parallel bars and pulling weights.

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED SEPTEMBER 5, 1911.

- N**O. 1,002,210. Nozzle. G. A. Anderson, Kansas City, Kan.
 1,002,214. Pneumatic tire. A. Bernier, Providence, R. I.
 1,002,246. Continuous process of making lead and apparatus therefor. C. Ellis, Montclair, assignor to Ellis-Foster Co.—both of New Jersey.
 1,002,253. Hot water bag heater. T. E. Fogalsang and Bertha McCutcheon, assignors to J. A. Moross—both of San Francisco, Cal.
 1,002,264. Hose coupling. J. C. Gribben, Lakewood, Ohio.
 1,002,316. Shoe form. W. C. Richardson, Lynn, Mass.
 1,002,362. Mop wringer. H. F. Beers, assignor of one-fifth to J. B. Faulke, one-fifth to J. Seim, and one-fifth to M. M. Marsh—all of New York.
 1,002,364. Teething device. J. S. Bridges, Chicago, Ill.
 1,002,380. Process of making white lead. E. Eustim, assignor to Eustim Lead Co.—both of St. Louis, Mo.
 1,002,426. Calf feeder. J. Moore, Winnipeg, Manitoba, Canada.
 1,002,448. Resilient connection. J. K. Putnam, Lawrenceville, Ill.
 1,002,468. Massaging device for the gums. W. F. Strangman, Salem, Mass.
 1,002,542. Hat pin guard. C. D. Reeves, Schenectady, N. Y.
 1,002,582. Vehicle wheel. B. W. Hammond, Richmond, Cal., assignor to Puncture Proof Tire Co., of Arizona.
 1,002,644. Manufacture of rubber hose. H. Z. Cobb, Winchester, Mass., assignor to Revere Rubber Co., Boston, Mass.
 1,002,654. Wheel tire. F. Dowd, assignor of one-half to H. H. Dowd—both of Cleveland, Ohio.
 1,002,667. Apparatus for the manufacture of rubber articles from old or waste rubber. T. Gare, New Brighton, England.
 1,002,686. Vacuum bottle casing. S. W. Heaton, Philadelphia, Pa.
 1,002,723. Attaching means for rubbers. S. J. McCann, Chicago, Ill.
 1,002,773. Form for producing artificial tooth crowns. E. R. Stevenson, Oakland, Oregon.

ISSUED SEPTEMBER 12, 1911.

- 1,002,873. Automobile wheel. A. Saltzer, assignor of one-half to M. Ryan—both of Sawtelle, Cal.
 1,002,929. Washing machine. F. Pohlmann, assignor to the firm of Hydorion Internat Wascherei-Maschinen-Gesellschaft—both of Zurich, Switzerland.
 1,003,002. Tire patching device. G. J. Martel, Chicago, Ill.
 1,003,003. Tire patching device. G. J. Martel, Chicago, Ill.
 1,003,004. Tire patching device. G. J. Martel, Chicago, Ill.
 1,003,030. Tire applying tool. T. W. Burt, Hempstead, N. Y.
 1,003,071. Tire. E. A. Sundvall, Stockholm, Wis.
 1,003,077. Foot protector. J. C. Watson, Kellerman, Ala.
 1,003,159. Fountain brush. S. Rivesville, W. Virginia, assignor of two-thirds to R. W. Hall and J. E. Shinn, Fairmont, W. Va.
 1,003,238. Pneumatic wheel. S. P. Cox, Bayport, N. Y.
 1,003,280. Vehicle tire. W. H. Mahlow, West Haven, Conn.
 1,003,314. Reinforced puncture proof tire. J. Anthony, Attleboro, Mass.
 1,003,336. Abdominal supporter. G. M. Champagne, Portland, Ore.
 1,003,356. Tire protector. J. I. Hall, assignor of one-half to E. Snyder—both of East Worcester, N. Y.
 1,003,363. Tire. A. F. Kramer, Freedom, Pa.

Trade Marks.

- 57,136. Manhattan Rubber Manufacturing Co., New York. Representation of a hose consisting of three longitudinal strips, each strip of alternate blue and yellow color. Hose conduits.
 57,291. Empire Rubber Manufacturing Co., Trenton, N. J. The word *Rival*. For cotton rubber lined hose.

ISSUED SEPTEMBER 19, 1911.

- 1,003,479. Pump valve. C. O. Lucas, Dayton, Ohio.
 1,003,579. Pneumatic cushion for vehicles. G. J. Bancroft, Denver, Colo.
 1,003,589. Game apparatus. J. T. Fenton, Salt Lake City, Utah.
 1,003,596. Spring wheel. E. G. Glaser, North Dover, Ohio.
 1,003,605. Aeroplane. L. B. Holland, Philadelphia, Pa.
 1,003,619. Spring wheel. H. Laubersheimer, New York.
 1,003,728. Detachable rim device for road vehicles. A. Flett, London, England.
 1,003,815. Protector for vehicle tires. C. Scott, Baker, Ore.
 1,003,853. Apparatus for extinguishing fires. D. W. Adams, Glendale Springs, N. C.
 1,003,855. Shoulder bag water spraying apparatus. D. W. Adams, Glendale Springs, N. C.
 1,003,856. Horse pack water bag spraying apparatus. D. W. Adams, Glendale Springs, N. C.
 1,003,935. Combined respirator and pressure equalizer. W. F. Merryman, assignor of one-half to P. Hoffman—both of Denver, Colo.

ISSUED SEPTEMBER 26, 1911.

- 1,004,004. Pipe coupling. M. A. Farrell, Raton, N. Mexico.
 1,004,254. Stocking supporter. H. C. Hazard, Baltimore, Md.
 1,004,304. Nipple for nursing bottles. G. R. Sheppard, Cambridge, Mass.
 1,004,318. Resilient vehicle wheel. R. L. Watts and A. G. Onstead, Waxahachie, Tex.
 1,004,343. Pneumatic tire. J. C. Barker, Leeds, England.
 1,004,394. Swimmer's appliance. W. Enders, North Kaukauna, Wis.
 1,004,397. Vehicle wheel. W. F. Fahrney, Chicago, Ill.
 1,004,461. Hose rack. C. and R. Nuhning, Cincinnati, Ohio.
 1,004,464. Tire valve. W. W. Potter, Pawtucket, R. I.
 1,004,480. Vehicle tire. P. G. Seward, assignor to Seward Rubber Tire Co., Inc.—both of Petersburg, Va.
 1,004,481. Vehicle tire. P. G. Seward, assignor to Percy Seward Rubber Tire Co., Inc.—both of Petersburg, Va.
 1,004,487. Anti slipping and skidding device. W. H. Snyder, Ashbourne, Pa.

Trade Mark.

- 57,725. Revere Rubber Co., Chelsea, Mass. The word *Banner*. For horse-shoe pads.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1910.

*Denotes Patents for American Inventions.

(ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 6, 1911.)

- 11,576 (1910). Extraction of dirt, resin and other matter from rubber. J. Thame, East Sheen, London.
 11,605 (1910). Apparatus for making elastic tires and covers. A. von Bucovich, Vienna, Austria.
 11,645 (1910). Non-metallic bodies and tread bands for tires. F. Rose, Liverpool.
 11,664 (1910). Coating metal surfaces with rubber. St. Helens Cable & Rubber Co., J. Taylor and J. H. C. Brooking, Warrington.
 11,695 (1910). Rubber washers in wheel tires. R. T. Shelley, Precision Works, Birmingham.
 11,889 (1910). Rotatable washers in wheel tires. J. D. Rowland and Warne, Wright & Rowland, Watery Lane, Birmingham.
 11,893 (1910). Rubber blocks for cycle pedals. C. Marston and W. Hough—both of Wolverhampton.
 11,937 (1910). Helical springs in elastic tires. K. Müller, Darmstadt, Germany.
 11,954 (1910). Rubber blocks in wheel tires. F. Walton, London.
 12,002 (1910). Spring wheels with pneumatic cushions. C. F. M. Brown, London.

(ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 13, 1911.)

- *12,176 (1910). Waterproof basin for surgical operating pans. F. R. Lintelman, Harlan, and A. P. Hanchett, Council Bluffs—both in Iowa, U. S. A.
 12,202 (1910). Protective rubber thimble for brush handles. A. Taylor, Swinton, Lancashire.
 12,263 (1910). Inflated rubber shells for manufacture of wood substitutes. B. Melzer, Hetschburg, near Weimar, Germany.
 12,354 (1910). Casing of tire valve. A. F. Davies, Streatham, London.
 12,358 (1910). Use of hollow elastic balls in outer packing boxes, to resist shocks. Independence Incubator Co., and A. E. Johnson, Birmingham.
 12,388 (1910). Automatically inflatable life belt. H. W. Fysh, Great Massingham, Norfolk, and T. C. Green, South Chingford, Essex.
 12,435 (1910). Keeping cores of pneumatic tires in position. A. J. McKinney, Highgate, London.
 *12,487 (1910). Improvements in air pumps for inflating tires. J. J. McIntyre, Hartford, Conn., U. S. A.
 12,523 (1910). Improvements in manufacture of tire covers. E. Clark, V. J. Heinecke and C. N. I. Winter-Irving (trading as Motor Tyre Co.), Burnley, Victoria, Australia.
 *12,533 (1910). Metallic tire covers with flexible treads. J. P. Magney, Los Angeles, Cal., U. S. A.
 12,541 (1910). Covers for pneumatic tires. C. Halin, Beauraing, Belgium.
 12,583 (1910). Rubber stiffeners for wearing apparel. F. Kleemann and M. Frank, London.
 *12,646 (1910). Attachment of tires to rims. P. C. Bell, Milburn, N. J., and B. Dahl, Minneapolis, Minn., U. S. A.
 12,713 (1910). Manufacture of metal hoops for pneumatic tires. Bréhier et Cie., Paris.

(ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 20, 1911.)

- 13,047 (1910). Rubber pad in hat pins. E. C. & A. H. Crook, Birmingham.
 13,183 (1910). Paint for tubular tire casings. J. Hubbard, Goodmayes, and W. Cumner, Endsleigh Gardens—both in Ilford, Essex.

- 13,201 (1910). Improvements in rubber washing machines. Crude Rubber Washing Co. and M. M. Dessau, London.
- 13,287 (1910). Clip for holding tire inflators. C. W. F. H. and E. A. Bluemel, Wolston, Warwickshire.
- 13,310 (1910). Improvements in rubber springs. F. W. Lancheater, Edgbaston, Birmingham.
- (ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 23, 1911.)
- 13,425 (1910). Removal of impurities in washing rubber. Crude Rubber Washing Co., and M. M. Dessau, London.
- 13,560 (1910). Suction recesses in pneumatic tire treads. C. Burnett, Durham.
- 13,657 (1910). Tire attachments to rims. J. A. Legh, Ambleside, Westmoreland.
- 13,706 (1910). Anti-skid devices for rubber tired wheels. K. Kahdemann, Berlin.
- *13,773 (1910). Detachable rim for vehicle wheels. R. W. Jordan, Boston, Mass., U. S. A.
- *13,819 (1910). Method of vulcanizing tires. R. Rowley, New York, and J. J. Coomber, Jersey City, N. J., U. S. A.
- 13,897 (1910). Manufacture of vulcanized tire covers. G. Fossi, Florence, Italy.
- 13,925 (1910). Tire attachment to rims. L. Forse and J. A. Mayo, both in Yeovil, Somersetshire, and F. S. Spiller, Hampstead, London.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

- 426,292 (February 18, 1911). Société Française des Tissus Biases, A. Bourdin. Covers for pneumatic tires.
- 426,293 (February 21). A. Cleret. Improvements in hollow elastic tires for cycles, automobiles, carriages, etc.
- 426,309 (February 21). F. Little. Repairing pneumatic tire covers.
- 426,331 (February 18). J. Favre. Rubber tires for vehicles.
- 426,479 (February 15). A. E. Vale. Improved tires, and process of manufacture.
- 426,513 (February 23). F. Clerget. Improvements in pneumatic tires.
- 426,451 (May 3, 1910). A. Lafitte. Prevention of coagulation of latex during transportation.
- 426,457 (February 3, 1911). H. Debaugé. Purification by osmose of natural and regenerated rubber.
- 426,584 (February 27). G. J. Martel. Appliance for repair of pneumatic tire covers.
- 426,585 (February 27). G. J. Martel. Appliance for strengthening pneumatic tires.
- 426,914 (March 7). E. B. Killen. Improved press for making tires and other articles in rubber.
- 426,911 (March 6). F. Knipp. Rotating heel.
- 426,946 (March 7). C. L. V. Mundhenck. Improvements in vulcanizing machinery.
- 427,012 (March 8). W. M. Callender. Processes for production of rubber or other substances resembling rubber.
- 427,049 (March 8). J. G. A. Kitchen. Improvements in manufacture of elastic tires.
- 427,059 (May 18, 1910). C. A. E. Putois. Improvements in elastic tires for vehicles.
- 427,060 (May 18). Société Eng. Verdon & Cie. Improvements in elastic tires for vehicle wheels.
- 427,205 (March 11, 1911). J. J. P. Le Grand. Mechanical strengthening of pneumatic tire covers.
- 427,216 (March 13). H. L. Heusch. Pneumatic tire with metallic cover retaining its shape, specially applicable to heavy automobiles.
- 427,245 (February 22). Filzfabrik Adlershof Aktiengesellschaft. Automobile tires.
- 427,173 (March 13). A. Schleiffer. Extraction of resins from crude rubber.

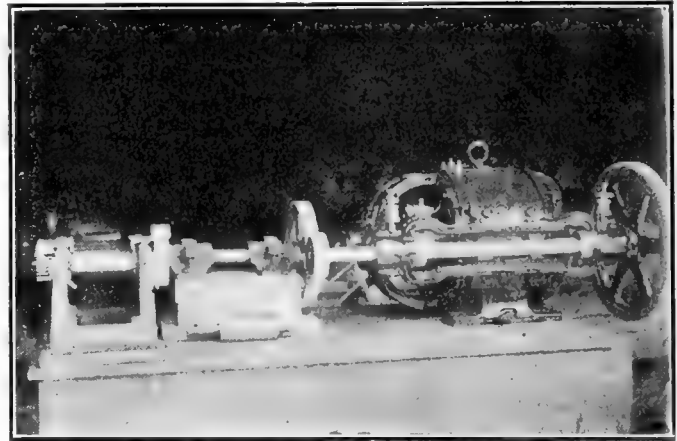
THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

- 238,419 (from June 21, 1910). Georg Pleissner, Dresden. Tires with inserted elastic rubber.
- 238,215 (from August 3, 1910). The Rubber Patents, Limited, Cowley, and John Turner, Waverley, England. Covering for toy balls, with a foundation of vulcanized textile material.
- 238,357 (from February 28, 1911). Carl Kleinhaus, Blasewitz, Dresden. Mouthpiece for spray pipe.
- 239,512 (from August 6, 1910). Dr. Paul Hunxeus, Hannover. Toy figure, straightening itself from bent position.
- 239,265 (from September 28, 1909). Maschinenfabrik Moenus, A. G., Frankfurt-a-M. Machine for stitching driving belts.
- 239,002 (from October 16, 1909). Léon Turcal and Georges Nuth, Neuilly-sur-Seine, France. Process for manufacture of masses for polymerization or vulcanizing.
- 239,045 (from January 19, 1910). Auguste Louis Cadé, Paris. Fastenings for pneumatic tires.
- 239,151 (from October 18, 1910). Jacob Mevis, Aachen, and Arnold Siep, Junnersdorf b. Zulpich. Cover for pneumatic tires, with imbedded protective appliance.
- 239,292 (from June 9, 1910). Wilhelm Gluche, Breslau. Elliptical corrugated rubber treads for shoes.
- 239,766 (from February 18, 1911). Gustav Tietze, Leipzig. Adjustable rubber stamp.
- 239,699 (from August 24, 1910). Linke & Co., G. m. b. H. Zittau. Improvements in edges of hollow rubber articles.
- 239,609 (from January 27, 1910). Richard Latour, Menin, Belgium. Protective cover for pneumatic tires, with cords laid crosswise.

THE GOUGH "RUBBER MILL."

THE Wallace L. Gough Co., No. 108 Water street, New York, have recently installed an electrically operated mill grinder and washer for the purpose of testing crude rubber, of which they handle many varieties and which they distribute in large volume.



THE GOUGH "RUBBER MILL."

The Gough "Rubber Mill" is in charge of John Garrett, an experienced rubber mill superintendent, and will no doubt do much to increase the already high standard of the offerings of this well-known house.

UNITED STATES RUBBER CO.'S ISSUES.

Transactions on the New York Stock Exchange for five weeks, ending October 28:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend, October 31, 1911—1%.

Week September 30	Sales 11,400 shares	High 39½	Low 30½
Week October 7	Sales 59,100 shares	High 45½	Low 40
Week October 14	Sales 17,503 shares	High 45½	Low 43½
Week October 21	Sales 5,300 shares	High 44½	Low 42½
Week October 28	Sales 9,500 shares	High 43½	Low 41½

For the year—High, 47½, March 1; Low, 30½, September 25.
Last year—High, 52½; Low, 27.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, October 31, 1911—2%.

Week September 30	Sales 3,250 shares	High 106¾	Low 104
Week October 7	Sales 1,750 shares	High 109¾	Low 107
Week October 14	Sales 940 shares	High 110	Low 108¾
Week October 21	Sales 1,285 shares	High 108½	Low 106¾
Week October 28	Sales 1,250 shares	High 107½	Low 105¾

For the year—High, 115½, July 7; Low, 104, September 25.
Last year—High, 116½; Low, 99.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, October 31, 1911—1½%.

Week September 30	Sales 1,100 shares	High 69	Low 66
Week October 7	Sales 1,000 shares	High 75½	Low 74
Week October 14	Sales 600 shares	High 76	Low 75½
Week October 21	Sales shares	High	Low
Week October 28	Sales 200 shares	High 71¾	Low 70½

For the year—High, 79, March 1; Low, 63, September 26.
Last year—High, 84; Low, 59½.

SIX PER CENT. TRUST GOLD BONDS, \$19,000,000.

Outstanding of the 1908 issue of \$20,000,000.

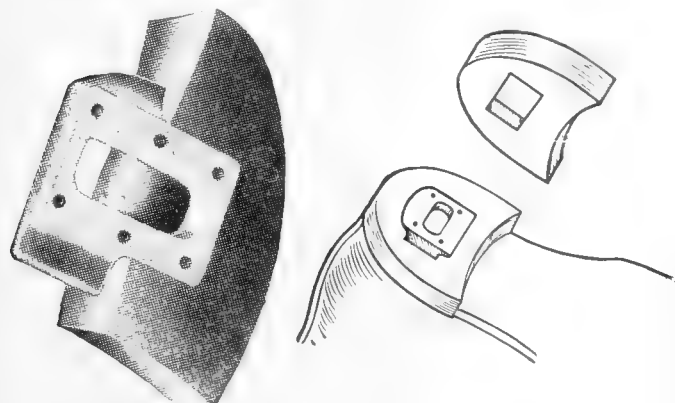
Week September 30	Sales 10 bonds	High 103½	Low 101¾
Week October 7	Sales 34 bonds	High 104	Low 103
Week October 14	Sales 26 bonds	High 103½	Low 103¼
Week October 21	Sales 50 bonds	High 104	Low 103¾
Week October 28	Sales 30 bonds	High 104	Low 103½

For the year—High, 105, July 15; Low, 101¾, September 30.
Last year—High, 106; Low, 102¾.

New Rubber Goods in the Market.

INTERCHANGEABLE RUBBER HEELS.

THERE is an almost universal human tendency to run over the outside of the heel. Very few people plant their feet so square and flat that the heel is equally worn all around; but here is a rubber heel that obviates that run-down-heel tendency, as this rubber heel can be changed from one shoe to the other so as to equalize the wear on both sides—whence the name "Double-Wear." Other rubber heels are nailed on, but this is applied differently. The requisite number of lifts are taken off the shoe (this is preferably done by the cobbler), a metal fastener is nailed on the middle of the heel, and this rubber heel is provided with an opening that fits down over



THE HEIMBACH DETACHABLE RUBBER HEEL.

this metal fastener. The wearer can put it in place and also remove it without trouble. [The Heimbach Rubber Heel Company, Duluth, Minnesota.]

THE KLIP LEGGINGS.

The part of a man's anatomy from his knee down to his ankle has not been as well provided for as the other sections. Overcoats come to the knees and high top shoes take care of the ankles, but between those two points there is often lack of adequate protection in stormy or cold weather. A good pair of leggings for an out-of-door man is therefore not only a convenience but often a necessity. The Dusell leggings are waterproof and hence are protection against storms. They are not made in rights and lefts, so you do not have to take the trouble to see which is which. They snap on around the knee without straps or buckles, and a little pull at the knee takes them off readily. In other words, they are so constructed as to go on and off with the least possible trouble. [The Dusell Company, Philadelphia, Pennsylvania.]



DUSELL WATERPROOF LEGGINGS.

HOODS FOR WASHING THE HAIR.

Among the patents recently granted at Washington, is one for a hair washing hood, made in various forms, one of which is shown in the accompanying illustration.

The hood consists of a cover, preferably made of rubber that fits down snugly over the head and around the back of the neck. Inside of this cover there is an inner wall also made of rubber,



HAIR WASHING HOOD.

about two inches from the outer wall, and in this space the soap or other cleansing material is placed. The inner wall has a great number of small perforations, these running through little rubber fingers that project inward.

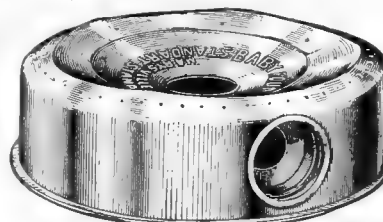
At the top of the hood there is an opening through which water is let in, the water being supplied through the rubber tube attached to a faucet. At the bottom of the hood there is an outlet for the water. The *modus operandi* is as follows: The hood is fitted around the head snugly so that the water will not come down over the face or neck; the water is turned on, the saponifying substance having previously been placed in the receptacle left for it between the walls. The water then runs through the soapy matter and through the hollow fingers which press against the scalp.

The cut shows the hood used where a woman is blessed with a considerable length of hair. A much smaller hood without the extension for flowing locks would be used for a man.

Orlando B. Salisbury, New York (Inventor and patentee).

IT SPRINKLES SQUARE.

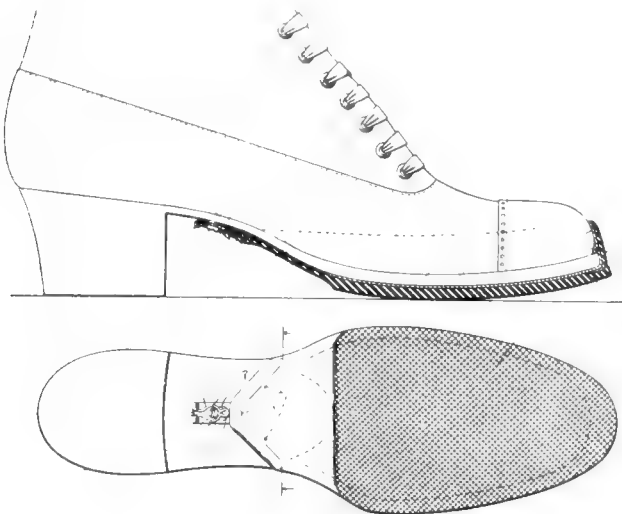
The ordinary lawn sprinkler waters a plot round in shape, but as very few plots of ground come in that shape, most lawns being rectangular, the ordinary lawn sprinkler must necessarily leave dry corners. Here is a lawn sprinkler that wets a square plot. It is called the "Baby" Fountain Lawn Sprinkler, being only 5¼ inches in diameter. It is made of brass and handsomely polished. It throws out the water in the form of a mist and so cannot do any harm to the most delicate vegetation. [The Standard Stamping Co., Marysville, Ohio.]



THE STANDARD; "BABY" LAWN SPRINKLER.

THE NEW INVISIBLE OVERSHOE.

For a good many years inventors have been trying to devise an overshoe that would do its work and yet keep out of sight. It is a well-known fact that nobody particularly cares to show



A "LOCKON" RUBBER SOLE.

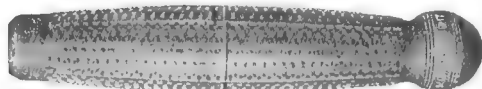
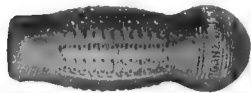
his rubbers, no matter how much he may want to wear them. Because of this general desire to have rubbers, but not show them all manner of clogs have been put on the market, the most advertised and best known being the "Everstick," a great many pairs of which have been worn during the last few years.

Now comes a new invisible rubber shoe, or more properly a rubber sole, and its quality of invisibleness cannot be questioned for it simply fits around the sole, although it can be made with a suggestion of a vamp at the toe. It differs from any former invisible rubbers in a mechanical device at the shank of the shoe which holds it on, whence its name the "Lockon." This locking device as shown in the accompanying cut consists of a rubber loop running back from the sole and ending in a metal buckle, which catches in a staple, which is fastened in the shank of the leather shoe.

It is claimed that this rubber sole can be put on and removed as readily as the ordinary overshoe. [Maurice C. Clark, Providence, Rhode Island, patentee.]

"ROUGH RIDER" GRIPS FOR BICYCLES.

Grips for bicycles and motorcycles of the "rough rider" type, are among the recent offerings. They are made with a basket-weave surface, which affords a very comfortable grip for the hand and avoids the



BICYCLE AND MOTORCYCLE GRIPS.

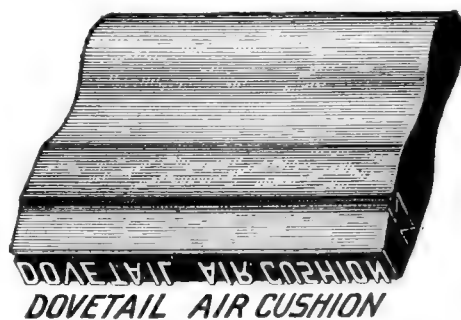
stickiness of a smooth surface. These grips are made in either red or gray. [Morgan & Wright, Detroit, Michigan.]

MACKINTOSH COVERS FOR AUTO SEATS.

THE OWNERS OF FINE CARS WHO WANT to keep the upholstery in good condition can get waterproof cushion covers for this purpose. They should see, however, that the covers are actually waterproof, and that they fit the cushions properly, covers too big being almost as unsatisfactory as covers too small. They should also see that they are reinforced with patches under each fastener to prevent them from pulling out.

DOVETAIL AIR CUSHION RUBBER STAMPS.

Rubber stamps made by the patented dovetail air cushion method have certain advantages. They are beveled so that in



using the stamp one can see where it is going instead of guessing at it, as in many of the square edged stamps. Moreover the cushion is dovetailed into the moulding so that it cannot fall off as often happens with the ordinary stamp. [Lamb & Tilden, Washington, District of Columbia.]

A CLAMP FOR HOSE

When hose becomes spongy or leaky it is a good idea to cut out the leaky section, trim the two ends evenly and clamp them together with the proper tube inside.

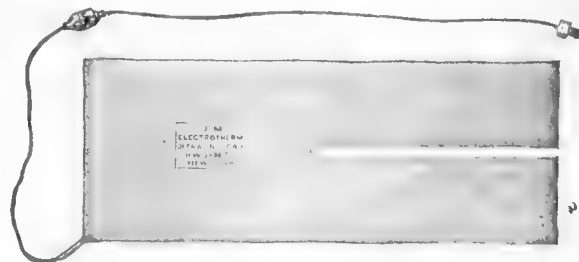


THE WALKER HOSE CLAMP.

Here is an illustration of a little clamp for use in garden hose. This clamp is put over the hose, a nail or a piece of wire or a punch is inserted in the hole at the top, and then by a few backward and forward movements of the nail, which catches in the holes of the inner band, the clamp is gradually tightened and held by the pawls of the top piece which catch in the notches of the inner band. [The Walker Hose Clamp Co., Battle Creek, Michigan.]

RUBBER PADS KEPT HOT BY ELECTRICITY.

The hot water bottle, generally useful though it is, has some disadvantages. It is hottest when first applied, and gradually cools and has to be removed from the patient for refilling. It also has considerable weight, which in certain sensitive cases is trouble-



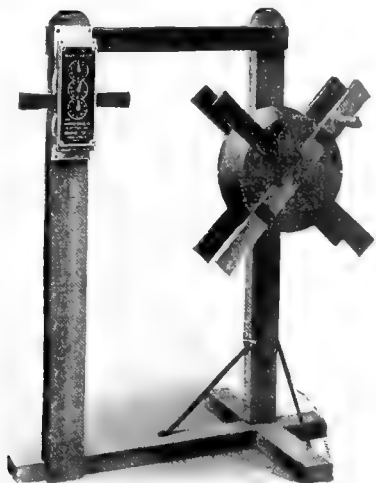
ELECTROTHERM PAD FOR OPERATING TABLE.

some. The J-M Electrotherm is designed to obviate all these disadvantages. It is light, is heated by electricity so that the heat can be turned on gradually and continued as long as desired. It is a soft, flexible pad, rubber surfaced, like that shown, and contains carefully insulated wires. When connected with an ordinary incandescent light socket the Electrotherm heats to any desired temperature in a few minutes. A regulating switch makes it possible to turn on any degree of heat desired, and a thermostat automatically limits the temperature to a safe degree. [H. W. Johns-Manville Co., No. 100 William street, New York.]

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

A WIRE REEL THAT MEASURES.

This device really ought to save time and trouble, as it measures the various sizes of wire, cable and cordage as they are rolled up. In the meter the wire passes between two self-

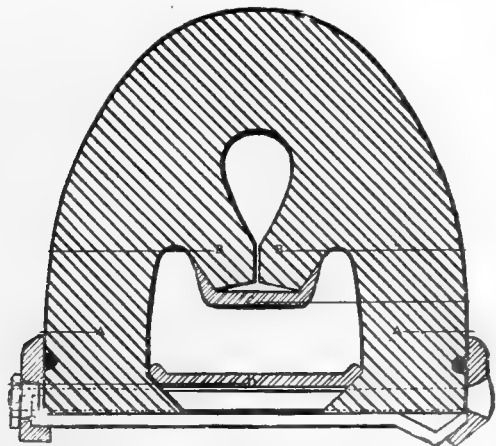


WIRE REEL AND METER.

adjusting rollers, which admit of considerable range and measure large or small sizes with equal accuracy. The reel is provided with removable crossbars and the drum with grooves, so that the coil can be bound with tight wires and removed in compact form. The device occupies but small space, and when not in use can be set to one side. [Minneapolis Electric & Construction Company, Minneapolis, Minnesota.]

A TEN THOUSAND-MILE TIRE.

"Ten thousand miles or your money back" is the reassuring guarantee given by the D & S Airless Tire Company. This is one of the latest productions of the tire inventors, who are trying to get the resiliency of a pneumatic tire without the disadvantages of an inner tube. The cut shows the airless tire. The tread or arch is supported by the two side walls or trusses (marked A). From these two side walls two arms (marked B) project inward and meet when the tire is in a normal position. A crosspiece of very strong rubber connects these two arms. When the tire is subjected to great weight these tend to sepa-

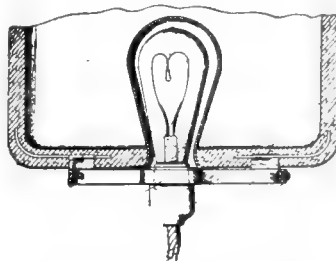


THE D & S AIRLESS TIRE.

rate, but are held together by the connecting crossband. If the pressure on the tread becomes particularly heavy these two inner arms will be pushed apart until they touch the side walls, which is as far as they can go. The tests which have been given this tire in Philadelphia seem, according to the daily papers of that city, to have been very successful. [D & S Airless Tire Company, Philadelphia, Pennsylvania.]

A HOT WATER BOTTLE THAT STAYS HOT.

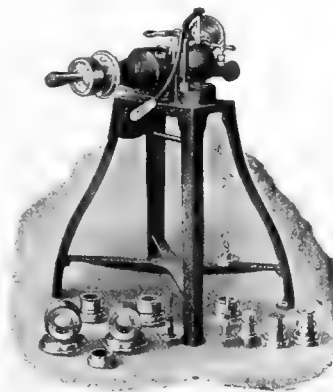
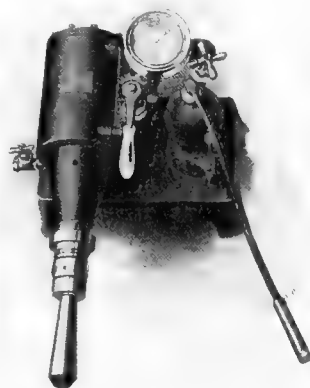
The trouble with a hot water bottle is that it does not stay hot, at least indefinitely. Here is a device to cure that defect.

SHOWING ELECTRIC BULB
IN BOTTLE.

It is a hot water bottle, in the bottom of which is a built-in chamber into which an electric bulb can be fitted. The socket of the bulb comes even with the bottom of the bottle, and at that point there are clamping arms that encircle the socket and hold it in place. If the current is turned on the water, of course, continues hot. The bottle can be filled with cold water and heated by the bulb where that is more convenient. [Patented by Dumont P. Lamb, Portland, Oregon.]

THE BUCKLEY HYDRAULIC EXPANDER.

A TOOL which has created much interest among manufacturers of fire, suction, chemical and other hose, and among fire departments in general, is the Buckley hydraulic hose coupling expander and hose-testing machine. This ex-

FRONT VIEW OF BUCKLEY HY-
DRAULIC EXPANDER.TOP VIEW OF BUCKLEY HY-
DRAULIC EXPANDER SHOWING
HAND PUMP.

pander is used for attaching the couplings to all kinds of hose, and not only is the work done quickly, but it is said that there is no chance of the couplings being put on too tight or not tight enough, which would cause "blow-offs" at fires, thus seriously crippling the work of extinguishing at critical moments. The exact pressure required to properly attach each size of coupling is plainly stamped on the machine and, if properly used, there is no chance for error. Any size of coupling from the smallest chemical hose coupling to the largest size of suction hose coupling can be handled by this machine. It works by hydraulic pressure in connection with a small hand pump and a few strokes of the handle on the pump by the operator is sufficient to produce the required pressure for any size of coupling, or an electric motor or a belt-drive attachment can be substituted for the hand-pump feature, thus requiring positively no labor at all. [Larkin Manufacturing Co., Dayton, Ohio.]

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

The Rubber Trade at Boston.

(By a Resident Correspondent.)

BOSTON is to be improved industrially, educationally, hygienically and otherwise during the coming years, and by 1915 it is expected to be the very acme of all things a city should be. The Chamber of Commerce is accomplishing much in this direction, and the New England Industrial and Educational Exposition, which was held during the entire month just past, has shown, in a measure, what has been done and is doing along these lines. There are many working exhibits of leading industries, and a whole section showing what is being done in the way of industrial education by the city schools and various institutions and by private enterprise.

The rubber trade was not so fully represented as its importance deserves. The Hood Rubber Co. had a most interesting working exhibit, and the Shawmut Tire Co. showed samples of its goods, including sectional and partly made tires. The Foster Rubber Co. exhibited its rubber heels and cushions, also its new horseshoe cushions, and its giant black cat (with a man inside) made periodical trips through the building. Hunt's composite rubber heels were shown in the basement, and Jenkins Brothers exhibited their sheet packing in connection with their valve display.

The exhibit of the Hood Rubber Co. attracted a great deal of attention, as it was one of the unique features of the exposition. In their booth there was a hut of the shape and about the size of those usually occupied by the natives who gather the rubber along the Amazon River. The posts of this rubber gatherer's hut were hung with sheets of Pará rubber, while the walls were made of blocks of the cultivated Ceylon rubber. Inside the hut skillful workmen were making rubber boots and shoes. This naturally attracted a continuous crowd of spectators, and they seemed chiefly impressed with the number of pieces that constitute the usual articles of footwear, 32 separate pieces going into the boot and 21 being combined to form a woman's croquet. These rubbers were all made over the aluminum lasts used by the Hood company.

In addition to this working exhibit there was displayed a very full line of the Hood output and large-sized photographs of the different departments of the factory, which helped to give a further idea of the size of their plant. The guessing contest, referred to in another column, in which the visitors were asked to guess the weight of a large biscuit of rubber, also attracted a great many people.



The exhibit of the Foster Rubber Co. displayed a full line of the "Cat's Paw" and "Foster" rubber heels and soles. The "Cat's Paw" heel has proved very popular and has reached a production of about 30,000 pairs a day. This heel, by reason of the patented friction plug in the back, both prevents slipping and gives extra wear.

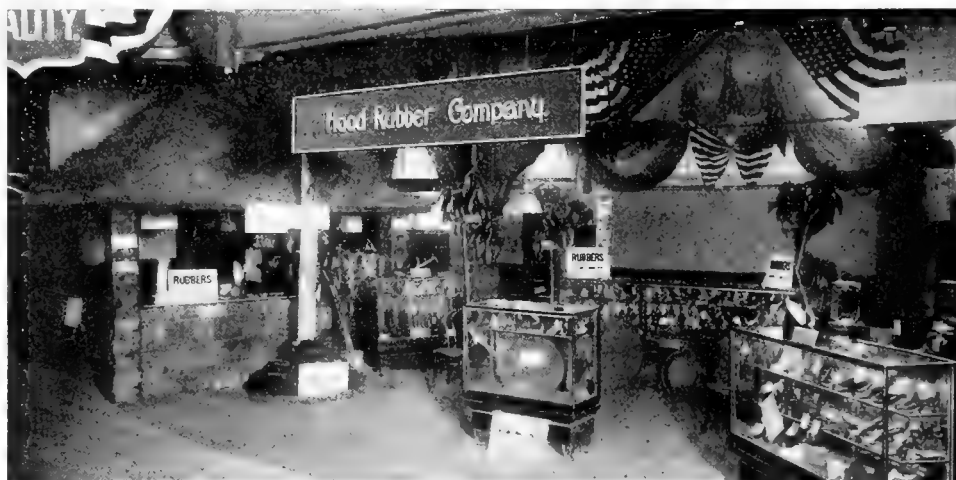
Down in the basement the Hunt composite rubber heel was exhibited. This heel is made at the factory of the Boston Woven Hose & Rubber Co., with which Mr. Hunt, the inventor, is connected. The heel has a core or centre composed of rubber, in which layers of cotton duck are introduced and around this an edge of rubber without any fibrous admixture. The heel is a new one, but recently placed on the market.

* * *

Work is progressing most favorably on the new Forsyth Dental Infirmary, that splendid charity which has been previously mentioned in THE INDIA RUBBER WORLD. The granite foundations are now being laid, and within a few weeks the beautiful white marble walls will begin to rise and the building show the results of Architect Graham's care and study.

This novel charity is the first of its kind in America. It is instituted to care for the mouths and teeth of the poor children of this city. It will be a memorial to James Bennett Forsyth and George Henry Forsyth, by Thomas A. and John H. Forsyth, all well-known names in the rubber trade.

This building will be a notable addition to the many beautiful institutional structures in the Fenway district. The original plot of 51,000 feet has been added to by the acquisition of 6,000 feet of adjoining land, and therefore this imposing and palatial edifice will have suitable surroundings to set it off appropriately



HOOD RUBBER COMPANY'S EXHIBIT AT THE NEW ENGLAND INDUSTRIAL FAIR.

and attractively, and thus more fully carry out the founders' ideas.

Thomas A. Forsyth takes a great personal interest in the work of building and is a very frequent visitor to the scene of operations. He attends every meeting of the trustees and is in constant touch with the progress of the building and is looking forward with pleasure to the time when the institution shall inaugurate the noble work for which it is founded.

MOTORS BETTER THAN ARMY MULES.

George T. E. Bliss, who has been in command of a division of the brigade at San Diego, California, has made very extensive tests as to the serviceability of the motor truck for army use. He reports as follows: "From a military point of view the advantages arising from shortening the line of march, from the absence of horses, from the ability to send the trains on long detours, thus insuring their safety and at the same time with the certainty of their being on hand when wanted are obvious. In my opinion the time has come for the adoption of a motor truck specially designed for military service and its gradual substitution for the greater part of the work done at present by escort wagons."

The motor truck was found to have a first cost advantage of \$664, as compared with the cost of an equivalent outfit of three wagons, 12 mules and harnesses. In the cost of operation the motor truck showed a saving of \$372 in 93 days. It looks as if the army mule might lose his occupation.

FOSTER RUBBER CO AT THE INDUSTRIAL FAIR.

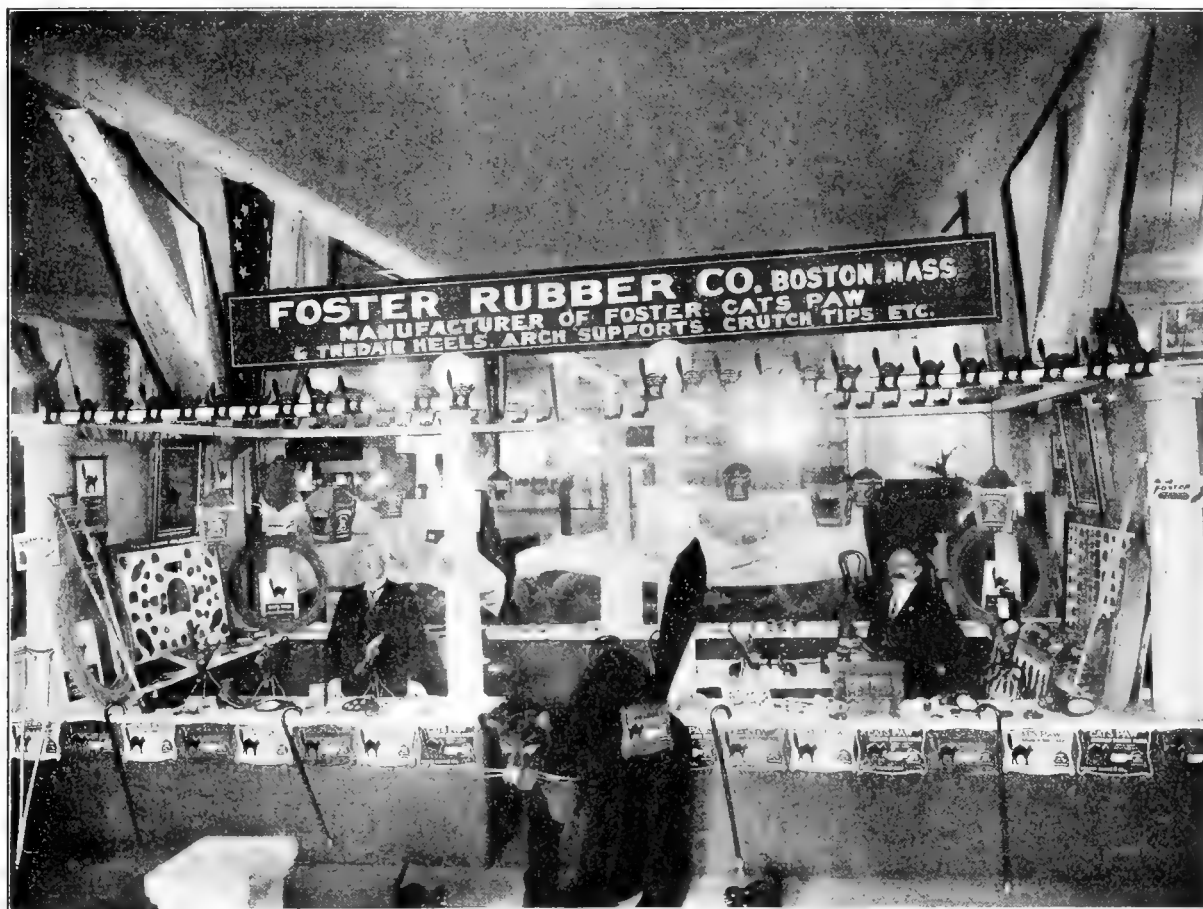
THE Boston Rubber Co. exhibited at the Boston exposition a complete line of its patented specialties, including the Foster, Cat's Paw and Tredair heels, Foster sole, crutch tips, horse shoe pads, and automobile tires, all made with patented fabric tread.

The illustration below is from a photograph of the company's exhibit and shows the various goods which were on exhibition, as well as the numerous black cats—the trade-mark of the Foster Rubber Company, as applied to rubber heels, and especially to the "Cat's Paw" heel. This particular heel has during the past few years reached a large sale and at the present time the company is manufacturing between twenty-five and thirty thousand pair daily. The feature which the Cat's Paw heel claims over the ordinary rubber heel is that the patented friction plug prevents

THE NEW WIRE CODE SPECIFICATIONS.

IT is held that in view of the constantly increasing adoption of electric lighting, the danger of fire arising from defective insulation is a growing source of hazard to life and property. While it had been supposed that the tests of insulated wire adopted early this year by the National Board of Fire Underwriters, had fully covered the important question at issue, recent experience is understood to have demonstrated that wire capable at time of inspection of standing such tests, failed more or less to retain its capacity of doing so; the element of durability being evidently of equal or greater importance as compared with initial properties.

Hence the introduction of more stringent tests has been under discussion between the National Board of Fire Underwriters and the principal insulated wire manufacturers, with the



FOSTER RUBBER CO.'S EXHIBIT.

slipping on wet sidewalks, and at the same time gives extra wear.

A RUBBER TREE IN BOSTON.

When the announcement was made a few weeks ago that Arnold Arboretum, connected with Harvard University, was experimenting with a Chinese rubber tree to see if it could be made to grow successfully in the United States, a great deal of interest was awakened in rubber circles, but no one expected to see a rubber tree yielding a generous amount of latex in the vicinity of Boston in the immediate future. It was quite a surprise, therefore, to the visitors at the Industrial Exhibition held in Boston during October to come upon a rubber tree connected with the Hood Rubber Co. exhibit, which, from time to time, gave forth a plentiful supply of latex. Whether this was purely the work of nature or had more or less artificial assistance it is not necessary to discuss.

result, it is understood, that fresh tests of efficiency will be in force from January 1, 1912, in respect to which alone, the underwriters' stamp will be applied after that date.

While a new and higher standard is thus being introduced on January 1, it is fully recognized that in justice to manufacturers, dealers and contractors, they should be allowed to dispose of such stocks of old code wire as they may have on hand at that date. A further concession will probably be the permission to use old code stamps on hand, upon wire manufactured after that date. However, it is anticipated that after January 1 the greater proportion of old code wire will be unstamped. Up to July 1, 1912, its use would, however, be allowed where permitted by the Local Board of Fire Underwriters. After the latter date its employment would not be authorized by the Underwriters. Of course there will still be a market for a long time for old code wire to be used in connection with repair work.

THE RUBBER TRADE IN SAN FRANCISCO.

(By a Resident Correspondent.)

THERE has been little to indicate what kind of a fall and winter season this is going to be, as far as the rains are concerned. There was one good downpour lasting a few hours, and that is all so far. The rest of the time the weather has been very warm, in fact, the nearest approach to summer weather this summer. Last winter there was no rain until after the first of January, and it is to be hoped that it will begin earlier this season. The merchants all state that business is fairly good, although it seems to be the case that there is nothing that can be said to make it seem particularly lively. The entire state and coast is entering upon a season of prosperity, however, and there is little question in the minds of any of the merchants that the coming year will be more prosperous than either of the last two years.

* * *

Last month the Pacific Coast Rubber Manufacturers' Association held its regular annual meeting for the election of officers. The meeting was held in the large banquet room of Tait's cafe, and was largely attended by representatives of the local establishments which are members. Henry P. Martine has been the president during the past year. The officers elected for the coming year are: Jos. V. Selby, president; C. H. Chase, vice-president; Wm. Heckman, treasurer, and on the executive committee, Messrs. McNeilly, Daggett, R. H. Pease, Jr., and Mr. Martine.

* * *

The Pennsylvania Rubber Co. has secured the line of the Detroit Demountable Rim. They are also meeting with great success on the coast on the newly acquired Pollock Truck Tire. An important deal has just been closed by this firm whereby they have placed all the lines carried by them with the big Fresno firm of Kuttner, Goldstein & Co. This latter firm operates five large stores in the principal cities of the central and southern valleys, and distribution through these stores will mean a big thing for the rubber firm.

* * *

W. W. Wuchter, president of the Swinehart Tire and Rubber Co., of Akron, has been a visitor in San Francisco, having been through the principal cities of the Northwest, where he established agencies for his factory.

* * *

The Fisk Rubber Co. has contracted for a two-story and basement reinforced concrete building, to be erected on its property on the northwest corner of Van Ness avenue and Austin street, at a cost of \$15,000.

* * *

The Diamond Rubber Co. has undertaken to secure information from every town in the interior of California and Oregon relative to the condition of the roads and the activity of the country sheriffs and constables in those particular localities. A daily bulletin is kept of this information, and it is at the free disposal of all automobilists. It has the beneficial effect of bringing many automobilists into the firm's headquarters. F. O. Nelson, manager of the firm's Los Angeles branch, has returned from his trip to Honolulu.

* * *

The Diamond Rubber Co. has opened a branch store at 12th and Harrison streets, in Oakland, California, under the general management of C. E. Mathewson. The local branch manager will be J. O. Stewart. A complete stock will be carried there, and all adjustments will be made by factory trained men. The firm has no more beautifully equipped branch store west of Chicago. It has a tile floor, genuine mahogany fixtures and French bevel plate glass. The increase in business in Oakland is making this necessary, and such a branch is particularly gratifying to the Oakland motorists, because after the 1906 fire the company's Pacific Coast headquarters were for a while in Oakland. Now business has reached such proportions that they were compelled to

open a branch, and a very fine one, too. This is the latest of twelve branches that have been opened up by the Diamond Rubber Co. in the last few years, so that there is now a branch in practically every city of importance in this territory. These branches employ a force of about 175 men, who are under the general supervision of Mr. Mathewson.

* * *

William Heckman, secretary of the Gorham-Revere Rubber Co., has severed his connection with that firm, and will probably accept a similar position with Mr. Gorham's large and flourishing engineering plant, The Gorham Engineering Co.

* * *

U. S. Grant reports that the new sanitary rubber toilet seat is gaining a firm foothold in the market. A large order has just been placed to supply them for the public playgrounds in San Francisco.

* * *

Mr. Muschet, who for sixteen years was purchasing agent for the Risdon Iron Works, has recently started into the engineering and mining specialty business for himself, with offices in the Hooker & Lent building.

* * *

All of the local people identified with the rubber business were greatly grieved to learn of the death of Mr. Pierce at the factory of the Cleveland Rubber Company. Mr. Pierce was for some time manager of the former branch here of the Revere Rubber Company, and was one of the most popular men in the business.

* * *

Herbert K. Selby, representing the Boston Woven Hose and Rubber Co. in the Northwest, with offices at Portland, Oregon, visited San Francisco during the past week, making his headquarters at the company's offices in this city.

* * *

The Auto Tire Co. is a new retail concern which opened on the first of this month at 533 Van Ness avenue. This firm has stores now in New York and Los Angeles. H. A. Demarest is the manager.

* * *

The Continental Tire Co. has leased a new building, now nearly completed, on Van Ness avenue, between McAllister street and Golden Gate avenue. The building is one story, with mezzanine floor, finished elegantly and along classic lines.

* * *

The American Rubber Co. is building a new building for its plant at Emeryville, California. It will build a two-story brick building adjoining its present building, at a cost of \$15,000.

* * *

A new firm, known as the New Tire Co., has opened on Van Ness avenue. The firm is under the management of N. C. Dunham, who will make this city the northern distributing point. They have a branch in Los Angeles.

* * *

C. C. Eichelberger, Pacific Coast manager of the Firestone Tire and Rubber Co., has returned from his three weeks' trip to the factory reunion at Akron.

* * *

Mr. Tripp, in the office of the Bowers Rubber Works, has been taken sick with typhoid fever. He is beginning now to improve, and hopes to be soon on the road to his usual good health.

* * *

Mr. Cook, manager for The B. F. Goodrich Co.'s branch in San Francisco, reports that business is moving along in a very satisfactory manner in all departments.

* * *

R. H. Pease, president of the Goodyear Rubber Co., reports that they find business greatly improved in all lines since October 1. The small rainstorm of two weeks ago braced up business in

the boots, shoes and clothing lines. All it will take, he says, will be a little more rain occasionally to keep a good business going in those particular lines.

Chanslor & Lyon, of this city, have recently acquired the coast agency for the Kelly Racine tire.

James F. Childs, representative of the American Hard Rubber Co., is expected here on his annual trip about the first of November.

Nat. Dodge, of the Western Belting and Supply Co., is now visiting in San Francisco. He comes from the New York office.

The Panama Rubber Co. has sold out to the Plant Rubber and Supply Co., and its manufacturing plant has been moved from First street to the establishment of the latter firm on Beale street.

The Gorham Engineering Co. has been awarded the contract for supplying the fire apparatus for the city of Palo Alto.

The F. A. Cigol Rubber Co. has placed its agency on the coast with Wm. Getty, in the Sheldon Building.

The National Pacific Rubber Co. has been incorporated in Los Angeles with a capital stock of \$200,000, three subscribers being J. R. Nash, H. L. Dietcher and E. B. Hottler.

Louis H. Scherer has sold a half interest in the Pneumatic Rubber Re-Thread Tire Co. The company is not incorporated.

NEW TRADE PUBLICATIONS.

THE North British Rubber Company, Limited, Castle Mills, Edinburgh, has prepared a little booklet entitled "Scientific Rubber Manufacture," which gives in considerable detail and with various photographic illustrations a description of the scientific manner in which the work at that factory is conducted. This booklet is *apropos* of a new laboratory and experimental department which the company has recently built and equipped. The work in this new laboratory, which is the third that the company has installed during the last ten years, is divided into several departments as follows: Research chemical laboratory, routine chemical laboratory, physical, electrical, experimental, and mechanical laboratories. The research chemical laboratory, as its name indicates, is devoted to experimental work in chemistry. In the routine chemical laboratory the supplies of the factory—crude rubber, chemicals, etc., are tested. In the physical Laboratory the specific gravity of finished goods is carefully investigated and especially in goods used in aeronautics—balloon and aeroplane fabrics—with special reference to their impermeability to hydrogen. In the electrical laboratory tests are made on rubber gloves and vulcanite goods to see what resistance they have to electric currents. The experimental department is in reality a complete rubber mill on a small scale with mixers, grinders, etc. In the mechanical laboratory tests are made as to the tensile strength of fabrics used in the factory. It is altogether an interesting little booklet, especially to rubber manufacturers. [4 x 6½ inches. 16 pages.]

The Firestone Tire and Rubber Co., Akron, Ohio, has just issued a finely printed octavo catalogue, 20 pages and cover, descriptive of the rims it makes. This company believes that it is an unwise policy to pass the making of rims over to outside manufacturers, and that it is much more conducive to good results to have the rims made by those who make the tires, in order that the two may develop together and the best combination be effected. This little catalogue illustrates and de-

scribes the Standard Clincher Rim; the Quick-Detachable Clincher Demountable Rim; the Dual Quick-Detachable Clincher Demountable Rim; the Quick Removable Rims for side wire motor tires, and the Channel Rims. Diagrams are given that make it very easy to locate the different parts that constitute these various rims.

Lewis & Peat, London, England, have recently sent out a pamphlet of some thirty pages, entitled "International Rubber Exhibition, Agricultural Hall, London, 1911; A Short Criticism on the Exhibits from Ceylon, Southern India, Malaya, Dutch East Indies, Uganda and East Africa." They preface their criticism by congratulating the planters who exhibited in the recent exhibition on the excellent quality and condition of their samples, which showed a marked improvement in their preparation over those displayed at the exhibition three years ago, the bulk of the samples of *Hevea* being in blanket crepe form. In the opinion of the authors, the two best forms of preparation of rubber for the market and the form in which the rubber is most saleable are blanket crepe and smoked sheet, and most of the exhibits from the Ceylon and Malay estates were in one of these two forms. There were only a few samples of *Hevea* shown in the Uganda section, but these were enough to show that this species of rubber can be successfully cultivated in that country, as the quality was excellent and the rubber strong and marked by all the characteristics of the *Hevea* grown in the Far East. Of the *Ceara* rubber from East Africa, there were many excellent samples, but all, in the opinion of the authors, had one fault, namely, too much resin.

Volume 1, No. 1, of "The Goodrich," a monthly magazine, published by The B. F. Goodrich Co., has recently come from the press. This magazine is intended for the automobile and commercial truck manufacturers and dealers and also for the users of commercial vehicles. The object of the publication, in addition to further acquainting the public with the merits of the Goodrich products, is to bring together the manufacturer, dealer and user of automobiles and commercial vehicles in mutual coöperation. Its columns are open to all discussions that would be helpful to the people interested in this subject, and to the exchange of ideas.

This initial number, which is profusely illustrated, is devoted quite naturally to showing—succinctly—the wonderful growth of The B. F. Goodrich Co., which started in Akron—the first of the rubber companies to locate in that city—in 1871, in a modest little mill that could be now easily tucked away in one of the rooms of the present plant which covers over 32 acres. Those were the days of small beginnings, for in 1880, nine years after the founding of the business, it only employed 55 men. It now has 5,000 employes, which is a quarter of the total number of rubber workers now located in Akron—very properly called the "Rubber City" of America.

The United States Tire Company has distributed its October number of the publication entitled "U. S. for US." As stated on the cover of this publication, it is intended for exclusive circulation among the employes of that company, and for that reason is written in a very familiar vein. It gives, however, much wholesome advice on the methods of achieving success in general, and particularly success in marketing United States tires. The author quotes from Emerson and draws his illustrations from the Old Testament, thereby displaying a commendable range of reading.

A RUBBER STOCKING WORTH \$1,500.

A Chicago jeweler, who recently arrived in New York on one of the Holland-American boats, wore a rubber stocking which proved to be worth \$1,500. This high appraisal was not due altogether to the quality of the fine Up-river Pará used in its construction, but was attributable rather to the fact that the customs inspectors discovered \$1,500 worth of unset diamonds carefully stowed away within the stocking. This shows that hardly a day goes by that some new use is not discovered for rubber.

The Rubber Trade at Akron.

(By a Resident Correspondent.)

FROM one man, Dr. B. F. Goodrich, can be traced the development of Akron's immense rubber industries.

In 1869 he was a real estate dealer in Brooklyn. His counsel was John P. Morris. They transferred realty holdings for an interest in a rubber company at Hastings-on-the-Hudson. The company was new, the rents were heavy, competition was keen, and their initial undertaking proved a failure. But this schooling was practical and substantial, the field was promising, and they believed that the West offered better opportunities and more co-operation than the East. In quest of a location for a future plant, Dr. Goodrich first went to Jamestown, New York, and then to Akron. Akron had an informal board of trade, Col. George T. Perkins being president of the organization. The Board of Trade requested Col. Perkins to make an investigation. He reported favorably on the proposition, and the machinery of the factory was shipped to Akron. The site chosen was the center of the present plant, and contained less than an acre of ground. The initial cost was \$1,800. Upon this site was placed a small brick building, which was part of the mill room until 1910.

The moulded and manufactured products began in 1871. Belting, hose and moulded goods were the chief sources of revenue. The White Anchor fire hose was one of its leading products, as it is now.

The partnership form of organization was changed into a company in 1880. The initial capitalization was \$100,000. The incorporators were Dr. B. F. Goodrich, George T. Perkins, George W. Crouse, Alanson Work and Richard P. Marvin, Jr. These men were the first board of electors, and elected the following officers: President, Dr. B. F. Goodrich; vice-president and superintendent, Alanson Work; secretary and treasurer, George T. Perkins. The office force consisted of a bookkeeper and three clerks, one as correspondent and the other as time clerk.

The first addition to the original plant was a small brick building of three stories and a basement, measuring 40x100 feet, made in the summer of 1881 at a cost of \$9,000. About the same time another building was planned for the steam and power supply.

In July, 1884, the old hand presses for vulcanizing were replaced by hydraulic presses. In 1888 the first electric lighting plant was installed, with a capacity of 150 to 200 lights. From this time on active building operation was continued and remodeling of old structures and adding of new ones and buying of more real estate took place. One of the first large buildings was the specialty building constructed in 1895. In 1902 the hose building was added. In 1905 this group was extended by erecting a rubber shoe building.

The chief building period commenced with 1907, in which time a large building for pneumatic tires was erected; in 1908 the new calendar building was put up, and later the machine shop and the truck tire building. The machine shop is five stories high, built around a hollow square. The length of this structure is 185½

feet, and it is 160 feet deep. On the first floor are the repair or maintenance department and the company's garage for tire testing automobiles, for its freight trucks and privately owned machines. The truck tire building is 100 feet wide, 500 feet long, and has six stories and a basement.

The B. F. Goodrich Co.'s force in 1880 numbered 55 men; at present it is more than 6,000.

In 1900 there were eight branches; at present there are 24. These cover the United States, Canada, Mexico and Europe. In addition to the branches, there are 27 stock depots, auxiliaries grouped about these branches. These are established to aid the dealer, enabling him to serve his trade more promptly.

This company directs its European and Asiatic trade from its London branch; goods for its Continental trade will be shipped largely from its Paris factory. The motorists throughout Europe are supplied through 110 stockists, carrying all lines of Goodrich tires. To meet the European and Asiatic trade, the company has incorporated the *Société Française*, B. F. Goodrich, which factory is located at Colombes, near Paris. Special machinery

designed in the United States has been shipped to this plant.

The size, growth and organization of The B. F. Goodrich Co. make it a representative of American ingenuity, industry and enterprise.

* * *

The balloon "Akron," now ready for a trial trip at Atlantic City, is under the roof of a big hangar, its nose pointing oceanward. It contains

40,000 cubic feet of hydrogen gas. The crew has gone into training. Mr. Vaniman requires the men to sleep aboard the 29-foot lifeboat which hangs underneath the 1,500-gallon gasoline supply tank, so that they will become accustomed to the throb of the engines, which are set pulsating every night. This preliminary training was not given to the men in Mr. Wellman's balloon, and consequently the sickness that comes from this new kind of navigation had its effect on the men, which Mr. Vaniman is trying to avoid. Just over the heads of the occupants is the apparatus used as an equilibrator. It has the appearance of the keel of a ship, with a number of small projections covering the smooth surface. This is filled with water, and when the lower temperature at night causes the gas bag to contract and to descend, the opening of several valves will release a sufficient quantity of water to bring the ship to the desired height. When the heat of the day expands the balloon, the hose is thrown overboard and water pumped into the container as needed.

Mr. Vaniman declares it is possible to cross the Atlantic inside of sixty hours, and that he hopes to be able to cross in that time. Frank Seiberling, the Akron financier of the expedition, is optimistic, and believes that Mr. Vaniman will have a successful flight.

THE accepted authority on South American rubber.—"The Rubber Country of the Amazon," by Henry C. Pearson.



BIRDSEYE VIEW OF THE B. F. GOODRICH CO., AKRON, OHIO.

THE RUBBER TRADE AT CINCINNATI.

(By a Resident Correspondent.)

RUBBER footwear manufacturers came in for their share of criticism at the annual convention of the Ohio Retail Shoe Dealers' Association, which was held in this city. It was claimed by the association that the manufacturers are at present practically compelling the purchase of rubber footwear by retailers long before the stock is needed and that these goods must be paid for by December 1 in order to secure a discount which would at all compensate for the additional time it is necessary to carry the stock. It is explained that the dealers do not begin to realize on the stock until after December 1, because of the fact that there is little demand for rubber footwear until after January 1. Another grievance held by the members of the association against the manufacturers is that notwithstanding the downward tendency of the market on the raw material there has been absolutely no reduction of the price quoted by the manufacturers on the finished product. The dealers claim that despite the fact that there has been a tremendous reduction in the price of raw material since last year, the manufacturers have not seen fit to reduce the price on rubber footwear. The association members claim that the price of rubber footwear should fluctuate with the market, as do automobile tires and certain other rubber products, and they hold that they are being discriminated against not only in that they are compelled to purchase and pay for their goods before the sale season is actually on, but must pay prices entirely out of proportion to the cost of production.

The matter of bringing about an adjustment of the grievance held by the association was referred to a committee with instructions to formulate plans whereby the association will get a "square deal" from the manufacturers. Before the convention closed the committee through its chairman G. C. Marsh, who is vice-president of the association, gave out the statement that the association will either finance a company for the manufacture of rubber footwear, or either have the entire association combine and make its purchases in immense quantities to secure a reduction in price and then distribute to the retail dealer. The association seems more inclined toward the plan of each member placing his order with one member of the association and have that member combine the orders into one large order and have the goods shipped to a central point in the state and reshipped from that point.

* * *

Captain J. F. Ellison of this city has been appointed head of the navigation department of the Port of Pará Company, which has headquarters in Paris and New York. Capt. Ellison will be in command of the company's fleet of 40 new steel steamers, which will open up the Amazon river as it never has been, develop the great rubber producing field and put the state of Bolivia on the map commercially. Capt. Ellison is the secretary of the National Rivers and Harbors Congress, and also secretary of the Ohio Valley Improvement Association. He has resigned the secretaryship of both these organizations. The salary he is to draw is not stated, but it may be accepted that it is the largest ever paid an American river steamboat man. He has signed a contract for three years, and will leave in December to assume charge of the navigating interests of the company. He will be accompanied by the 30 best steamboat engineers, captains and pilots of the western rivers. The amount of money the Port of Pará company plans to extend is not stated, but already \$13,000,000 have been spent on the Port alone. The Madeira and Mamore railroad, 210 miles long, is now being built by the company. Of the 40 steel steamers that are nearing completion, 14 of this number being built in this country, will ply on the principal upper tributaries of the Amazon, Madeira, Purus and Jura, and connect with the 12

Holland-built boats which will be confined to the deeper channel of the Amazon. The value of the commerce it is expected this company will do may be estimated from the fact that hardly less than \$100,000,000 will be invested, to open the new rubber field, while 25 tons of supplies must go up the river for every ton of rubber produced.

* * *

B. M. Lovell, formerly connected with the Chicago branch of the B. F. Goodrich Co., has been assigned to the Cincinnati branch of the company, as manager, succeeding J. V. Blake, who resigned to accept a position with a blank book publishing company in Michigan.

RUBBER INDUSTRY IN RHODE ISLAND.

(By a Resident Correspondent.)

THE condition of business in the rubber mills and factories making insulated wire in Rhode Island has been steadily improving since the close of summer, and may now be said to be on a satisfactory basis with all factories working, not only on full-time schedules, but in several instances running nights.

The depression, which during the latter part of the summer was responsible for the closing of some of the largest plants in this section, has been so much relieved that those at the head of the mills that felt it most say they do not expect another shutdown in a long time.

* * *

The National India Rubber Co. at Bristol is running its large factory on a full-time basis now, and frequently during the past month has been forced to operate several hours evenings to fill orders. Business is especially good in the wire insulating department, although large shipments of rubber shoes have also been made recently.

A system of towers is being added to the plant for the purpose of connecting and operating auxiliary buildings of the wire insulating department by machinery. Work on the erection of the towers began recently in charge of Contractor W. G. Murphy, of Warren.

It is planned to use ropes and pulleys for the outside buildings of the wire department instead of leather belts, since it has been found by tests made that the ropes can accomplish as much as the belts. Foundations of stone and concrete have been laid, and it is expected that within two weeks they will be completed and the new buildings in use.

Many of the orders which this firm is filling are from the Southwest and the Pacific coast, and in the event of a rush brought on by cold weather, the company has well-filled storehouses of the manufactured product which may be drawn upon.

* * *

Arthur L. Kelley, president of the Mechanical Fabric Co., of Providence, has been made a member of the executive committee of the Tariff Publicity League, an association just formed in Providence among the leading manufacturers of Rhode Island. The purpose of the league is to disseminate information which will tend to show what the league regards as baneful effects resultant upon tariff tinkering, and more especially from the prospective lowering of protective schedules.

* * *

Additional hands are being constantly taken on at the Providence plant of the United States Tire Co., which is operated day and night. Work on three new buildings, which materially increase the size of the plant, has just been started. Each of these is of one story in height, and constructed of wood. One of the new buildings will be used as a storehouse, while the others are for sheds.

* * *

A recent addition made to the plant of the American Electrical Works at Phillipsdale is a stranding department, which is now in

operation. The building that houses this department is over 100 feet long, and the machinery for manufacturing the strands is running. Motive power is supplied by electricity.

The American Electrical Works is this year assessed by the town of East Providence on a valuation of \$603,450.

* * *

Both the Alice and Millville mills of the Woonsocket Rubber Co. at Woonsocket, are running on full time at present, employing as many hands as their capacity will allow.

* * *

The Phillips Insulated Wire Co., of Pawtucket, having worked its plant on a schedule of five days a week for some time, has just felt that business conditions warrant the addition of a half day to the working hours. This shop is one of the largest wire making establishments in Rhode Island, employing over 300 hands.

* * *

The Washburn Wire Co., of Phillipsdale, paid its regular quarterly dividend of 1¾ per cent. on preferred stock October 2. This company is assessed by the tax collectors of East Providence on a valuation of \$380,114.

* * *

Business at the factory of the Consumers' Rubber Co., in Bristol, is brisk at this time, and for several weeks it has been necessary to maintain an overtime schedule. Terrence McCarty is president of this concern.

OPPORTUNITIES FOR AMERICAN TRADE IN GERMANY.

GEORGE S. ATWOOD, secretary of the American Association of Commerce and Trade, in Berlin, who has been very active in encouraging and assisting American trade in Germany, and who incidentally is a very good friend of this publication, sends us the following list of interrogations, which we are very glad to publish:

Did you ever try to sell your goods in Germany?

Did you ever hear that Germany has a population of over 65,000,000?

Did you ever realize that these 65,000,000 of people are great buyers?

Did you know that some of the biggest American firms are doing a rattling good business in Germany?

Did you ever stop to think that labor-saving machinery is eagerly bought in Germany?

Did you ever hear that American machinery has revolutionized several branches of German manufacture?

Did you ever know that the Germans are like the Athenians of old, always looking after something new?

Did you every try to exploit the German market?

Did you know that the Germans are larger buyers of American machinery and American-made goods than all other Europeans?

Did you ever hear of the American Association of Commerce and Trade, Berlin?

Did you ever hear that this association was organized primarily for the promotion of American trade with Germany?

Did you ever hear how the American Association of Commerce and Trade has assisted American business men?

Did you ever consider it would be wise and in your interest to ask the American Association of Commerce and Trade to help you?

Did you ever consider the advisability of becoming a member of the American Association of Commerce and Trade?

Did you ever ask the assistance of this association to help you enter the German market?

If you have not done this, do so at once!

INTERCONTINENTAL RUBBER CO.—ANNUAL REPORT.

AT the meeting of the stockholders of the Intercontinental Rubber Co., held October 3, the annual report for the year ending July 31, 1911, was submitted. All the retiring officers were reelected. The 1 per cent. quarterly common stock dividend which was paid during the past year was not declared for the next

quarter. We give below the salient paragraphs of the report, together with the balance sheet:

"During the fiscal year above mentioned, quarterly dividends of 1¾ per cent. have been paid on the outstanding preferred stock, and four dividends of 1 per cent. each have been paid on the outstanding common stock, and in addition thereto the outstanding preferred shares of the company have been reduced to \$1,250,000, thereby reducing the dividend charge ahead of the common stock \$52,500, so that it is now but \$87,500 per annum.

"While the profits of your company for the fiscal year ending July 31, 1911, amount to \$2,640,518.69, from which you paid dividends amounting to \$1,299,490.00, leaving a net amount, less depreciation (\$137,145.63) added to surplus of \$1,203,883.06, your directors feel that the unsettled conditions in Mexico, which may affect both the cost of operation and the delivery and gathering of the shrub, which is your raw material, justify extremely conservative action at this time, and looking toward the permanent benefits to your company and to the value of your holdings, it seems wise to accumulate and hold the surplus for the benefit of the company for future development, rather than disburse it in dividends, or retire a further amount of preferred stock, which would be the regular course in normal times based upon the results obtained during the past fiscal year.

"Your directors are also of the opinion that the high prices of rubber which have prevailed on our contracts for the past several years may suffer a decline during the coming period, as is evidenced in so many other staple commodities. They also feel that the investors in your securities will appreciate such conservative action, and will be in thorough accord with their decision to pass the dividend on the common stock until such time as conditions justify its resumption."

BALANCE SHEET—JULY 31, 1911.

ASSETS.

Investments	\$30,193,523.58
Accounts and Notes Receivable, etc.:	
Advances to subsidiary companies..	\$1,787,799.30
Sundry accounts	2,675.41
	<u>1,790,474.71</u>
Cash	1,393,145.19
	<u>\$33,377,143.48</u>

LIABILITIES.

Capital Stock:	
Common	\$29,031,000.00
Preferred	1,250,000.00
	<u>Total capital stock outstanding.....\$30,281,000.00</u>
Amounts Payable, Taxes Accrued, etc.:	
Due subsidiary companies.....	\$9,097.45
Sundry accounts	12,486.74
	<u>21,584.19</u>
Dividend payable	290,310.00
General reserve account	1,050,000.00
Surplus (as below).....	1,734,249.29
	<u>\$33,377,143.48</u>

SURPLUS ACCOUNT.

Surplus August 1, 1910.....	\$530,366.23
Gross profits for year.....	\$2,714,255.45
Less:	
Administration and general expenses	73,736.76
	<u>Net profit for year.....2,640,518.69</u>
	<u>Total .....\$3,170,884.92</u>
Charges against surplus:	
Accounts charged off.....	\$137,145.63
Dividends paid	1,299,490.00
	<u>1,436,635.63</u>
Surplus July 31, 1911.....	<u>\$1,734,249.29</u>

THE accepted authority on South American rubber—"The Rubber County of the Amazon," by Henry C. Pearson.

News of the American Rubber Trade.

UNITED STATES RUBBER CO. DECLARES A COMMON STOCK DIVIDEND.

AT the meeting of the board of directors of the United States Rubber Co., held at the company's New York office, No. 42 Broadway, on October 5, the board declared a quarterly dividend of 1 per cent.

The following statement relative to the resumption of dividends on the common stock has been issued by the president of the company.

"Notwithstanding the fact that for some years past the surplus net earnings of the United States Rubber Co. have been considerably in excess of the sum required for dividends upon the preferred stocks, the directors have felt it for the best interests of the company, for reasons from time to time stated, to defer the payment of dividends upon the common stock of the company.

"While thus far in our present fiscal year there has been a falling off in certain lines of business of the company, owing to general conditions, other lines show a substantial gain, thus insuring from the entire business of the United States Rubber Co. and its subsidiary companies not less than an average product and profit for the year.

"This being so, the board of directors have felt justified in resuming, at this time, quarterly dividends upon the common stock, and have declared a dividend of 1 per cent., payable October 31, 1911."

This is the first dividend on the company's common stock since 1900, during which year 2 per cent. was paid. Previous disbursements on this stock were as follows: In 1895, 2½ per cent.; in 1897, 2 per cent.; and in 1899, 2 per cent., making all told up to the present time, including that just paid, 9½ per cent.

THE REPUBLIC RUBBER CO. INCREASES ITS STOCK.

The stockholders of the Republic Rubber Company, Youngstown, Ohio, will meet on November 10 to pass upon the proposal of the directors to issue \$1,000,000 preferred stock. President Robinson of the company is quoted as stating that one-half of this amount will be used for immediate additions to the plant and the remainder for improvements to be made later. He states that the company has more orders than can be filled, notwithstanding the extensive enlargements recently made.

THE NAUGATUCK CHEMICAL CO. DISSOLVES.

At the special meeting of the stockholders of the Naugatuck Chemical Co., called by order of the board of directors, and held at the office of the company, No. 42 Broadway, New York, on October 19, it was voted to dissolve the corporation. The reason of this dissolution is as follows: The business of the Naugatuck Chemical Co. is conducted exclusively in Naugatuck, Connecticut, where the works are located. It was thought wiser therefore to dissolve the New York corporation and to transfer the assets to The Naugatuck Chemical Co., a Connecticut corporation, formed some little time ago.

A \$766,300 RUBBER SUIT.

Richard S. Kaufmann was recently granted by Justice Bijur of the New York Supreme Court, leave to publish the service of papers in the suit which Mr. Kaufmann has brought against Gubbay & Co., Limited, of No. 16 Place Vendome, Paris, for \$766,300. Mr. Kaufmann gives his residence as Staten Island. He declares that in April, 1910, Antune & Co., of Pará, Brazil, owners of great rubber forests, offered to sell their interests to him for £842,500, equal to \$4,083,700. Gubbay & Co., Mr. Kaufmann declares, learned of this sale and offered to buy the properties from him for £1,000,000, equal to \$4,850,000. After inspecting the balance sheets of the Antune Company for five

years back the Gubbay Company, Mr. Kaufmann asserts, informed him that they were satisfied and would purchase the property. Three weeks later, he declares, the company suddenly backed down on their proposition.

Mr. Kaufmann is suing to recover the difference between the price which he says he paid the Antune Company and the price which, he alleges, the Gubbay Company offered him.

THE GOVERNMENT WANTS ELECTRICIANS.

The United States Civil Service Commission announces an examination, to be held on November 22, 1911, for positions as electrical assistants in the signal service-at-large in the War Department. The salary attached to this position is \$1,080 per year. The subjects which will count in the examination are: practical questions in electrical science, 20 per cent.; practical questions in construction and installation of electrical instruments, 30 per cent.; and training, experience and fitness, 50 per cent. Applicants should be familiar with the practical side of electricity as applied to telegraph, telephone and kindred engineering; and should be familiar with the equipment and methods of installation of telephones, storage batteries, motor generators, switchboards, wire and wireless telegraph apparatus. These examinations, which are open to all citizens of the United States, will be held in a great many places all over the country, a list of which can be obtained by writing the United States Civil Service Commission, Washington, D. C.

PERSONAL MENTION.

THOMAS H. DAVIS has become president and manager of the Granite State Rubber Co., Manchester, New Hampshire.

Ira J. Cooper, formerly with Morgan & Wright, has left that company and formed the Ira J. Cooper Rubber Co., to be located at Cincinnati, Ohio.

Thomas G. Richards, president of the B. & R. (Beebe & Richards) Rubber Co., in company with Mrs. Richards and Mr. and Mrs. Mahoney, recently took an extended automobile tour through New York state. Mr. Mahoney is foreman of the pad department of the factory.

Ex-Governor A. O. Bourn, treasurer of the Bourn Rubber Co., celebrated his birthday October 1, with a double dinner party, one on October 2, and the other given the following day. This division of the festivities was because of the large number of friends the Governor wished to invite, whom it required two dinners to entertain adequately.

The Massachusetts State Board of Trade held its twenty-first annual meeting with an accompanying lunch at the Hotel Vendome on October 10. William H. Gleason, treasurer of the Revere Rubber Co., Chelsea, Massachusetts, and Marsh G. Bennett, general manager of Samuel Cabot, Inc., Boston, are prominent members of this organization and are on the Committee on State Legislation, the former representing the Rubber Club of America.

A. W. Warren, secretary of the Hodgman Rubber Company, New York, has returned from Europe, where he spent a Fall vacation in England, France and Germany.

The families of two well-known rubber men were interested in a wedding which occurred October 17 in the Universalist Church, Malden, Massachusetts, when Miss Ruth Barker, daughter of William E. Barker, merchandise manager of the branch stores of the United States Rubber Company, was married to George Kenyon, of the Kenyon Rubber Company, of Brooklyn.

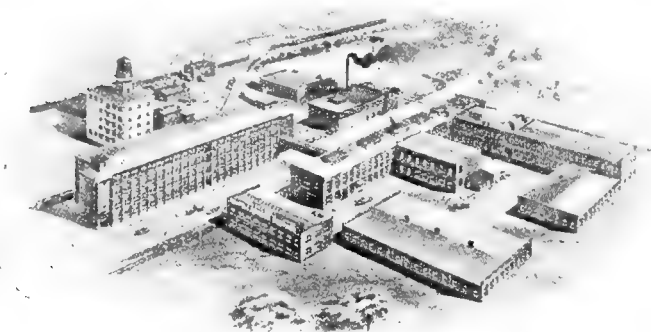
D. E. Beynon has been appointed superintendent of the Dunlop Tire and Rubber Goods Co., Limited, Toronto, Canada, in the stead of W. R. Blowers, resigned.

THE WALPOLE RUBBER CO.

A VERY good illustration of how large enterprises can be developed with proper ability from small beginnings may be found in the Walpole Rubber Co., Walpole, Massachusetts, which began twenty years ago as the Massachusetts Chemical Co. manufacturing liquid electrical insulation in a very small plant in South Boston, Massachusetts. From the manufacture of this insulation is gradually developed into the manufacture of insulating friction and rubber tapes, in which department its business has grown to such an extent that one day's production of insulating tape would now extend between four and five hundred miles if spread out in a continuous length.

In 1900 the company moved to Walpole and took up the manufacture of rubber heels and soles. Its present production of rubber heels is about 20,000 pairs a day, including the "Cat's Paw," "Foster," and "Orthopedic."

In 1908 the Walpole Shoe Supply Co. was organized for the manufacture of shoe supplies that contain rubber. About this time Mr. F. J. Gleason, the present vice-president and general superintendent of the company, invented an original



WALPOLE RUBBER CO., WALPOLE, MASSACHUSETTS.

process of making hollow moulded goods by the use of a fusible core, which immediately opened up to them a wide field for a variety of rubber products, such as hot water bottles, fountain syringes, and automobile horn bulbs. The next development was the patented Walpole rubber heel for horses. In order to meet the large trade in Canada, a Canadian company was organized and a factory built at Granby, Quebec, in 1909, known as the Walpole Rubber Co., Limited.

In 1910 all these various companies were brought into one corporation called the Walpole Rubber Co., with a capital of \$3,000,000. The success of the company is largely due to the practical ability of Mr. Gleason, the general superintendent, and the financial capability of A. T. Baldwin, the treasurer. The company is especially fortunate in its location in the town of Walpole, 18 miles from Boston, on the Neponset river, from which it gets water power. The mills are situated on a branch of the New York, New Haven and Hartford Railroad, and the town has two other railroads in addition, giving easy and frequent communication with Boston.

TAXICAB COMPANIES COMBINE.

The International Motor Service Association was formed September 13 in New York, for the purpose of concentrating the purchase of supplies by the taxicab, touring car, motor truck, and public service motor companies in America. About 500 firms scattered through the country have joined the association. The association will have its principal office in the Thoroughfare Building, Columbus Circle, New York, where the purchase and contracting for the association will be done. Mr. Charles C. James, founder of the association, says that the motor service companies of America alone purchase annually 18,000,000 gallons of gasoline, 200,000 gallons of lubricating oil, 250,000 tires, 500,000 inner tubes, 25,500 chains, 1,000 motor cars, taxicabs, etc., and \$1,000,000 in insurance premiums.

TRADE NEWS NOTES.

The Marion Rubber Co., of Columbus, Ohio, jobbers in rubber footwear and other rubber goods, are erecting a three-story building on Chestnut street in that city for their exclusive use.

The Petty Tire and Rubber Co., St. Louis, Missouri, has secured a permit for the erection of a two-story building for a salesroom and warehouse, at No. 1834 Locust street, St. Louis.

The Portage Rubber Co., Akron, Ohio, are sending out to the trade a novel and useful advertising device in the form of a small round rubber mat about $4\frac{1}{4}$ inches in diameter with a raised edge representing a tire on a rim. It is made of red rubber and can be used for various purposes on the desk. It is suitable for a mat for an inkstand or for a glass or can be used as a pin or clip tray. In raised letters it bears the story, "The Portage Rubber Co., Akron, Ohio, Manufacturers of Mechanical Rubber Goods and Tires of Every Description." It is a good piece of advertising.

At a recent aeroplane meet in Canton, Ohio, two Akron men, Frederick J. Seiberling, son of the president of the Goodyear Tire and Rubber Co., and E. F. Hemington, advertising manager of the same company, made trips into the air with Walter Brookins and Harry Atwood, the primary object of these aerial excursions being to ascertain how the rubber coated fabrics of the 'planes were working. Mr. Seiberling was in the air for 20 minutes, and professes to have had the time of his life.

Norman E. Mack's "National Monthly" is responsible for the statement that the manager of an asbestos mill, wanting to do something original and distinctive, recently sent out some announcement cards printed on thin asbestos and enclosed in asbestos envelopes. These were sent out to the company's stockholders and being uncertain about the addresses at that time of some of the stockholders the further inscription, "please forward," was added. It seems that one of the worthy stockholders had recently passed away and his widow on receiving the asbestos envelope with the "please forward" instructions was deeply touched.

The New York "Sun," in its issue of October 4, contained the following remarks regarding two recent changes in dividend payments, the passing of the Intercontinental Rubber Co. dividend and the paying of the United States Rubber Co. common dividend:

"Disinterested persons say that there is a connection between dividend prospects for United States Rubber common and dividend passing for Intercontinental Rubber common. The latter company deals mostly in raw rubber, whereas the former corporation handles chiefly finished rubber. Prices for crude rubber have gone from bad to worse in about the way that copper prices have. Therefore what is good for the United States Rubber Company is equally bad for the Intercontinental Rubber Company. In the statement regarding their passing of the common dividend the Intercontinental's directors said they thought prices might go still lower."

Three enterprising fellows were recently arrested and held for the grand jury in Louisville, Kentucky, on the charge of stealing a thousand dollars' worth of insulated wire which the National India Rubber Co., of Bristol, Rhode Island, is using in installing the new fire alarm system in Louisville. These thefts had been going on for several weeks, but eventually the detectives with the assistance of George W. Shaw, of the National company, succeeded in landing the culprits.

The United States Tire Co. is erecting an additional storehouse in connection with its plant at Providence, Rhode Island. The building will be one story and 20 x 50 feet.

The Hamilton Rubber Manufacturing Co., Trenton, New Jersey, is erecting an addition to its plant to be 3 stories high, 60 x 180 feet, and constructed of brick. The cost will be about \$30,000.

The Apsley Rubber Co., Hudson, Massachusetts, has put on an extra night force of men in its spreading department. The company expects to continue night work in its mill for some time.

THE KOKOMO CO. ELECTS OFFICERS.

At the election of officers of the Kokomo Rubber Company, Kokomo, Indiana, held October 11, Fred I. Willis, of Indianapolis, was elected vice-president, and George H. Hamilton, of New York City, sales manager. Both Mr. Willis and Mr. Hamilton recently acquired large holdings in the company. The Kokomo Rubber Company has a capital and surplus in the neighborhood of \$750,000. Heretofore it has manufactured vehicle, motorcycle and bicycle tires, but, according to the plans of the company, automobile tires will also be manufactured in the near future.



FRED I. WILLIS, GEORGE H. HAMILTON, D. L. SPRAKER.

Mr. Willis was formerly secretary-treasurer of the Hearsey-Willis company of Indianapolis, and Mr. Hamilton has been connected with a tire company in the East for ten years. Both men have been active in the welfare of the Federation of American Motorcyclists. For two years Mr. Willis was president of the federation, but was recently succeeded by Mr. Hamilton. For the past seven years, since the organization of the National Association of Cycle Jobbers, Mr. Willis has been secretary. D. C. Spraker, the president, continues in that capacity. D. L. Spraker remains as treasurer, and George W. Langdon is secretary.

TRADE NEWS NOTES.

The Walpole Rubber Company, Walpole, Massachusetts, paid on October 16 a quarterly dividend of 1 per cent. on the common stock and $1\frac{3}{4}$ per cent. on the preferred stock.

The Goodyear Tire & Rubber Company, Akron, Ohio, expects by reason of its enlarged facilities to have a capacity next year of 3,500 automobile tires, 500 motorcycle tires and 30,000 pounds of solid rubber truck and carriage tires per day.

The Hood Rubber Company had one feature in its exhibition at the Chamber of Commerce Fair in Boston that attracted particular attention. That was a half biscuit of Pará rubber, on the weight of which visitors were invited to guess. Over a thousand guesses were often recorded in a single day, these guesses showing a very wide range, indicating that a great many people have not much conception of the weight of crude rubber.

A new use for rubber, at least one new to the writer, is in connection with the secret rites of the excellent society known as the "Patrons of Husbandry." For what purpose it is used we do not know, but a part of their paraphernalia is a lightning machine to which rubber hose is attached.

The U. S. Rubber Reclaiming Works, Buffalo, New York, is erecting a new mill to be exclusively devoted to high-grade reclaiming, with special reference to the reclaiming of tires and inner tubes by a new process. The new mill will have a 2,700-horsepower motor, which in addition to the motor now in use will give a combined power of 6,000 horsepower, the power being derived from Niagara Falls. The enlarged mill will have a capacity of 25 tons per day and will employ 350 men. The

plant has a laboratory which is equipped with all the latest testing appliances.

This column contained an item in the October issue to the effect that the American Asphaltum & Rubber Company, Chicago, had secured a contract for paving certain streets in Grand Rapids, Michigan, but had been obliged to suspend work owing to an injunction. That paragraph was based upon information derived from a local source and apparently most reliable, but it appears to have been inaccurate, as we are advised by the American Asphaltum & Rubber Company, as follows: "We are not in the paving business, and in the second place we never secured a contract for paving in Grand Rapids or any other place; we have therefore not been obliged to suspend work." It is a pleasure to make this correction.

Over 40 branch managers, salesmen and agents of the Swinehart Tire & Rubber Company held an interesting meeting, September 29 and 30, at the factory office in Akron, Ohio. The policy for the ensuing year was discussed and plans laid for the distribution of the cellular anti-skid truck tire, which is a comparatively new product of the company. At the conclusion of the first day's conference automobiles conveyed the party to Young's Hotel at Turkeyfoot Lake, where they were the guests of the company for the evening.

The Maynard Rubber Co., Claremont, New Hampshire, have installed a new plant for reclaiming rubber which is working most successfully. They are also adding new boilers and other machinery.

The Republic Rubber Company (Youngstown, Ohio) has begun the erection of a building for the Pacific coast branch in San Francisco—of which M. W. Murray, their general western agent, will be in charge.

Mr. Heinz, the pickle man, is not the only one to boast of 57 varieties. The manufacturers of the Kleinert dress shields make 59 different kinds, and as each kind is made in 10 different sizes, they are prepared to supply the trade with 590 distinctly different shields—a sufficient number it would appear to cover every want.

Mr. Arthur C. Squires, after many years' absence is back in Naugatuck, Connecticut, for the purpose of interesting business men of that place in a new rubber clothing factory. Mr. Squires was connected with his father's rubber clothing factory in Naugatuck 30 years ago. Since that time he has spent many years in Akron, and has been engaged in various departments of rubber manufacture. Incidentally, he has been the author of quite a number of rubber inventions.

On October 10 a meeting was held in New York, when it was decided to organize a company to be known as the Squires Rubber Process Company, under the laws of the State of New York, and to locate the factory at Naugatuck as soon as the necessary charter could be obtained.

The Diamond Rubber Company has added \$2,000,000 to its surplus and at present has that amount of cash on hand and no debts. The company has declared dividends of 14 per cent. for the coming year, the same rate as was paid a year ago.

The John A. Roebeling's Sons Co., Trenton, New Jersey, is building 116 dwelling houses at Roebeling, New Jersey, for the company's employés. These houses will occupy 12 city squares.

The Federal Rubber Manufacturing Co., Milwaukee, Wisconsin, which early in the summer acquired the properties of the old Federal Rubber Co., wishes to emphasize the change of name. All communications of every sort should be sent to the new company, as the old company has gone out of existence. Owing to the similarity of the two names a great many people fail to give the present company its proper address.

Franklin Rubber Co., Boston, Massachusetts, within the next few weeks will erect a three-story reinforced concrete addition to their present plant in Malden.

NEW INCORPORATIONS.

AUTO SECTIONAL LEATHER TIRE Co., October 19, 1911, under the laws of New York; authorized capital, \$50,000. Incorporators: Herman L. Beiner, No. 261 Broadway; Isidore Scherer, No. 261 Broadway, and Moses Scherer, No. 264 Rivington street, all of New York. Location of principal office, New York. To manufacture leather and rubber tires, etc.

Composit Hose Co., September 12, 1911, under the laws of Maine; authorized capital, \$25,000. Incorporators: Leonard Atwood, Farmington, Maine; Charles C. Sole, Boston, Massachusetts; LeRoy R. Folsom, Norridgewock, Maine. To manufacture hose, belting and weaving machinery of all kinds, etc.

Eureka Double Resilient Tire Manufacturing Co., October 4, 1911, under the laws of New Jersey; authorized capital, \$25,000. Incorporators: Gideon S. Adams, Seaville, Harry Fox, and John B. Fox, Camden, all of New Jersey. To manufacture automobile tires.

General Rubber Co. of Brazil, September 20, 1911, under the laws of New Jersey; authorized capital, \$300,000. Incorporators: James Deshler, Frank LeBar, and Henry F. Miller—all of New Brunswick, New Jersey. The company has been incorporated for the purpose of buying, selling, and dealing in crude rubber, etc.

Kabus Rubber Co., October 9, 1911, under the laws of New Jersey; authorized capital, \$50,000. Incorporators: Ferdinand Kabus, East Orange; J. Oliver Thorp, Bloomfield, and Louis Pohl, No. 239 North Eleventh street, Newark—all of New Jersey. To manufacture, purchase and sell all goods of which rubber is a component part.

Kelly-Springfield Tire Co., October 11, 1911, under the laws of New York; authorized capital, \$10,000. Incorporators: Isaac L. Rice, No. 5 Nassau street; Van H. Cartmell, No. 117 West Seventy-ninth street—both of New York, and Frederick A. Seaman, Madison, New Jersey. Location of principal office, New York. To manufacture rubber tires, etc.

Kenilworth Rubber Works, September 27, 1911, under the laws of New Jersey; authorized capital, \$60,000. Incorporators: George B. Bradshaw, Kenilworth, New Jersey; Lester F. Dittenhoefer, No. 35 Nassau street, New York; Edward W. Lawler, No. 44 East Forty-third street, Bayonne, New Jersey. To buy, sell and deal in rubber goods of every description.

Keystone Tire and Rubber Co., September 27, 1911, under the laws of New York; authorized capital, \$5,000. Incorporators: Isaac Josephson, No. 5 Beekman street; L. Walter Lissberger, No. 1780 Broadway, and Joel Jacobs, Wellington Hotel—all of New York. Location of principal office, New York City.

Mercer Rubber Co. of Pennsylvania, October 2, 1911, under the laws of Pennsylvania; authorized capital, \$5,000. Incorporators: F. L. Allen, Sewickley; Harold E. Williams, Pittsburgh, and Moorhead B. Holland, Pittsburgh—all of Pennsylvania. To buy, sell, trade and deal at wholesale in rubber materials, etc.

Mexico Latex Co. of Delaware, September 13, 1911, under the laws of Delaware; authorized capital, \$150,000. Incorporators: H. O. Coughlan, Welcome W. Bender—both of New York City, and James M. Slatterfield, Dover, Delaware. The company has been incorporated to deal in rubber, gutta percha, gum and all sorts of rubber goods.

The Moore Architectural and Engineering Co., May 5, 1910, under the laws of Ohio; authorized capital, \$50,000. Incorporators: D. F. Felmy, F. R. Moore, and Charles S. Heller. The company has been incorporated for the purpose of engaging in, conducting and prosecuting the science and practice and business of architecture, etc.

New Bedford Elastro Co., October 6, 1911, under the laws of Massachusetts; authorized capital, \$25,000. Incorporators: Otis S. Cook, Frederick H. Taber—both of New Bedford, and

Morris R. Brownell, Fairhaven—all of Massachusetts. The company has been incorporated to engage in the rubber business and that of rubber substitutes.

Photo-Type Rubber Stamp Co., September 28, 1911, under the laws of New York; authorized capital, \$10,000. Incorporators: Thos. W. McKnight, No. 277 Broadway; Alfred J. Jorman, No. 210 West Fourteenth street, and J. Frank Wickens, No. 441 Ninth street, Brooklyn—all of New York. To manufacture rubber stamps, etc. Location of principal office, New York.

Reliable Tire Repair Co., September 18, 1911, under the laws of Illinois; authorized capital, \$2,400. Incorporators: John V. Leslie, George Haas, and Bert A. Fritz. The company has been incorporated to deal in and repair automobiles and automobile supplies.

Rubber Fibre Co., September 15, 1911, under the laws of Massachusetts; authorized capital, \$25,000. Incorporators: Ralph S. Earle, Sharon, James G. McGuire, E. Milton, and Howard P. Knox, E. Milton—all of Massachusetts. The company has been incorporated for the purpose of engaging in the rubber business and that of rubber substitutes.

Russell Rubber Co., October 4, 1911, under the laws of New Jersey; authorized capital, \$50,000. Incorporators: George G. Russell, Highland Park; James W. Devine, and Agnes M. Russell, Highland Park—all of New Brunswick, New Jersey. The company has been incorporated for the purpose of engaging and carrying on the general trade or business of making, manufacturing, etc., rubber, etc.

S. & K. Tire Co., September 13, 1911, under the laws of Illinois; authorized capital, \$4,000. Incorporators: David F. Rosenthal, Edwin D. Lawlor, and Leo S. Kositchek. To manufacture and deal in tires and materials for same.

The Sea Island Tire Co., September 20, 1911, under the laws of Ohio; authorized capital, \$15,000. Incorporators: J. C. Brooks, A. L. Welch, and A. C. Miller. To manufacture, buy, sell and deal in automobile tires and tire protectors, etc.

Venezuela Trading Co., October 9, 1911, under the laws of New York; authorized capital, \$10,000. Incorporators: Antonio Parra, No. 570 West One Hundred and Sixty-first street, New York; Julio A. Pocatererra, No. 230 West Fifty-second street, New York, and Russell G. Howe, No. 3 Ninety-sixth street, Brooklyn, New York. Location of principal office, New York. To manufacture rubber goods.

TRADE NEWS NOTES.

The Federal Rubber Manufacturing Co., Milwaukee, Wisconsin, is sending out, as an advertisement for its pneumatic and solid tires, a very convenient paper weight, in the form of a horse-shoe pad made of rubber, somewhat smaller than those used in real life, lined on the bottom with a piece of green felt. It weighs about one-half pound, and makes a serviceable paper weight.

The Fairfield Rubber Co., Fairfield, Connecticut, is building an addition to its present plant.

The Mercantile Rubber Co., composed of Joseph J. Casin and Dr. S. G. Hoffman, has opened a place of business at No. 201 Second street, New York City, for the purpose of dealing in druggists' specialties and sundries.

The largest taxpayer in the city of Melrose, Massachusetts, is the Boston Rubber Shoe Co., which pays a tax amounting to \$11,135.32.

Towner & Co., Inc., Memphis, Tennessee, have recently moved into a fine new building on South Second street and Union avenue, of that city.

H. W. Barlow, of the Boston Woven Hose and Rubber Co., Boston, Massachusetts, recently delivered an address on "The Rubber Business," before the salesmen and employes of the Standard Manufacturing Co., of Pittsburgh, Pennsylvania, on the occasion of their regular fall convention.

THE OBITUARY RECORD.

JOHN H. DONY.

W. H. SALISBURY & CO., INC., Chicago, Illinois, have sent to the trade a card announcing the death, on September 19, of John F. Dony, who for 30 years had been connected with the rubber department of that company. His work consisted largely in looking after the rubber requirement of the brewery trade, among the members of which he was long known and held in high esteem.

WILLIAM R. PIERCE.

William R. Pierce, who for several months had been sales manager of the Mechanical Rubber Company, Cleveland, died October 5 of enlargement of the heart at the home of his mother in Newton, New Jersey. Mr. Pierce was formerly the Western sales manager of the Revere Rubber Company, located at San Francisco, California. A widow and one child survive him.

PERSONAL MENTION.

Houston M. Sadler, who for many years was connected with the United States Rubber Co., first as cashier and later as assistant treasurer, acting treasurer and acting general manager, was recently elected secretary of the Computing-Tabulating-Recording Co., No. 25 Broad street, New York. This company is composed of the International Time Recording Co., the Computing Scale Co. of America, the Tabulating Machine Co. and the Bundy Manufacturing Co. These companies were not competing companies, but the different articles manufactured by them supplemented one another so well that the combination was formed to effect economy of administration and to exploit the various products with a greater degree of efficiency.

M. H. Parsons, who has been assistant manager of the St. Louis branch of the Goodyear Tire and Rubber Company, has recently been appointed manager in place of C. H. Gray, who has been made district manager for the company.

John S. Goodell, a graduate of the Massachusetts Agricultural College, Amherst, recently sailed for Hawaii with the intention of starting a rubber and tobacco plantation in one of those islands. Quite a number of recent graduates from this institution are now at work in the Hawaiian Islands.

What Cheer Lodge, No. 21, A. F. and M., of Providence, Rhode Island, recently observed "Fraternity Night," at which time members of the craft for 50 years were awarded medals. Among them was ex-Governor August O. Bourn of the Bourn Rubber Co.

A recent visitor to the United States was Ernest E. Buckleton, of the Northwestern Rubber Co. Limited, Litherland, Liverpool, England. Mr. Buckleton is delightfully optimistic about the future of the rubber business here and abroad. By the time this is in type he will have returned to Europe.

W. B. Hardy, formerly of the Diamond Rubber Company, has recently sold his fine estate, Sheffingham Hall, in Norfolk, England, and has taken up his residence in Paris.

Max Loewenthal, of the United States Rubber Reclaiming Works, is in New York for a short stay after a year in Europe.

W. J. Glendenning, who has had 18 years' experience in the rubber and balata trade in England and France and who has recently been connected with Turner Bros., Limited, asbestos and belting, Rochdale, England, has come to this country to start the factory for the Manheim Manufacturing & Belting Company, Manheim, Pennsylvania, which will manufacture the Veelos brand balata belting.

H. H. Holland, who has charge of the London office of the United States Rubber Company, recently spent several weeks in this country visiting the different factories where the footwear he handles is made. He sailed from New York on the steamship *Celtic*, October 19.

E. H. Huxley, formerly assistant superintendent at the factory of the National India Rubber Company, Bristol, Rhode Island,

and who recently changed to take a similar position with the Phoenix Cap Company, New York, has removed his family from Bristol to Englewood, New Jersey.

William Hillman resigned, on October 26, the position of general manager of the Peerless Rubber Manufacturing Co.

Frank L. Byrne, who has been recently added to the staff of the New York Commercial Co., bears a name that should be of value to him in rubber circles. He is the son of the late Frank L. Byrne, who through his connection with the crude rubber business of Lawrence Johnson & Co., Philadelphia, was favorably known to the whole trade.

TRADE NEWS NOTES.

A REPORT in one of the New York dailies recently stated that the United States Tire Co. had lost \$20,000 worth of tires through the unethical activities of some of its employees. The company learned, it is said, that most of the tires disappeared between its storehouses and its retail store. Transfer slips, it is charged, were made out by certain of their employees, but the tires, instead of being taken to the retail store, were transported to another distributing agency, where they were disposed of at a reduced rate. Detectives were put on the matter, and as a result five men have been arrested, three on charges of grand larceny, one for receiving stolen goods and the fifth for being the go-between.

Excavations are now in process for the new addition to the reclaiming plant of the United States Rubber Co., Naugatuck, Connecticut. It is stated that when this addition is completed there will be employment for 100 more hands.

The Vulcanized Rubber Co., Morrisville, New Jersey, is erecting a sizeable addition to its present plant.

The Metropolitan Coal Company, of Boston, recently purchased the wharf property of the old Boston Rubber Co., located between Chelsea Ferry and the East Boston Bridge, Chelsea, Massachusetts.

The Underwriters' Laboratories have approved "Sternoid," made by the Dickinson Manufacturing Co., Springfield, Massachusetts. This is a molded composition with non-absorptive, non-combustible and insulating qualities for use in electrical fittings where mechanical strength and durability are required. K. R. Sternberg, the treasurer and general manager of the company is the inventor of this composition.

The Empire Tire Co., Trenton, New Jersey, has recently been making shipments of tires to Australia, where it has established a branch office in Sydney. This company did an effective piece of advertising during the summer by sending a big touring car equipped with a calliope attachment through the Sandwich Islands.

The mileage record for tires for the past season is claimed by E. J. Hicks, of Indianapolis, who writes to The Diamond Rubber Co., that two Diamond tires on the rear wheels of his car have been on the wheels for four years, and have run 40,000 miles. He attributes this phenomenal record to continuous perfect inflation; but if all owners of cars, by keeping their tires fully inflated, could use them for four years, and get 40,000 mile out of them, the pneumatic tire output would drop from 4,000,000 tires a year to about 400,000.

The Swinehart Tire and Rubber Co., Akron, Ohio, has been making some unusually large tires lately for one of the New York motor truck companies. The tires range as large as 38 x 6 inches, and 48 x 6 inches. Large tires have quite a number of advantages. They do not feel the inequalities of the roadway nearly as much as smaller tires; in this way reducing the jar and the vibration. And of course they have a larger wearing surface, as they revolve a lesser number of times in covering any given distance.

At a meeting of the directors of the Standard Rubber and Cable Co., Bridgeport, Connecticut, held on October 27, a 5 per cent. dividend was declared, payable November 15, 1911.

Review of the Crude Rubber Market.

THE falling off in London prices recorded for the latter part of September (closing figure being about equal to \$1.14) was followed in the first week of October by a further drop to about \$1.10. The subsequent ten days witnessed fluctuations between \$1.08 and \$1.04. During the closing week a slightly easier tone has prevailed, the quotation of October 28 equalling \$1.03 for up-river fine, spot and for early arrival. Buyers have been apparently waiting for the auctions of October 31 before operating to any extent.

While at Antwerp and Havre the prices realized at last auctions were slightly higher than valuations, the quantities disposed of have been smaller than those offered. By a comparison with the situation a few months ago, it would seem that there is a falling off in the demand from industrial points, which is being reflected in the central markets of Continental distribution. The business done would therefore seem to indicate the fulfillment of special wants, rather a provision for later requirements.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and October 30—the current date.

PARÁ.	Nov. 1, 10.	Oct. 1, 11.	Oct. 30, '11.
Islands, fine, new.....	121@122	107@108	97@ 98
Islands, fine, old.....	none here	109@110	100@101
Upriver, fine, new.....	140@141	113@114	104@105
Upriver, fine, old.....	142@143	115@116	106@107
Islands, coarse, new.....	73@ 74	61@ 62	57@ 58
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	102@103	96@ 97	90@ 91
Upriver, coarse, old.....	none here	none here	none here
Cametá	75@ 76	66@ 67	59@ 60
Caucho (Peruvian) ball.....	100@101	98@ 99	89@ 90
Caucho (Peruvian) sheet.....	none here	none here	none here

PLANTATION PARÁ.

Fine smoked sheet.....	141@142	135@136	114@115
Fine pale crepe.....	140@141	133@134	115@116
Fine sheets and biscuits.....	138@139	128@129	112@113

CENTRALS.

Esmeralda, sausage	91@ 92	87@ 88	82@ 83
Guayaquil, strip	none here	none here	none here
Nicaragua, scrap	90@ 91	86@ 87	81@ 82
Panama	none here	none here	none here
Mexican, scrap	90@ 91	86@ 87	82@ 83
Mexican, slab	60@ 61	none here	none here
Mangabeira, sheet	75@ 76	none here	58@ 63
Guayule	65@ 66	46@...	45@...
Balata, sheet	@ 80	83@ 84	85@ 86
Balata, block	@ 56	58@ 59	53@ 54

AFRICAN.

Lopori ball, prime.....	124@125	111@112	98@ 99
Lopori strip, prime.....	118@119	none here	none here
Aruwimi	110@111	101@102	94@ 95
Upper Congo ball, red.....	110@111	110@111	90@ 91
Ikelemba	none here	none here	none here
Sierra Leone, 1st quality.....	119@120	95@ 96	86@ 87
Massai, red	119@120	96@ 97	89@ 90
Soudan Niggers	108@109	none here	none here
Cameroon ball	66@ 67	70@ 71	65@ 66
Benguela	88@ 89	70@...	65@ 66
Madagascar, pinky	none here	85@ 86	76@ 77
Accra, flake	46@ 47	27@ 28	28@ 29

EAST INDIAN.

Assam	none here	none here	none here
Pontianak	5½@5¼	6@...	5½@...
Borneo	none here	none here	none here

Late Pará cables quote:

	Per Kilo.
Islands, fine	3\$950
Islands, coarse	2\$100
Exchange	16 9/32d.
Latest Manãos advices:	
Upriver, fine	5\$350
Upriver, coarse	4\$150
Exchange	16 9/32d.

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

July 7	4/2½	September 1	4/8½
July 14	4/5½	September 8	4/9
July 21	4/7	September 15	5/
July 28	4/8	September 22	4/10½
August 4	4/7½	September 29	4/8
August 11	4/7½	October 6	4/7
August 18	4/7½	October 13	4/5
August 25	4/10½	October 20	4/6½

Liverpool.

WILLIAM WRIGHT & CO. REPORT (OCTOBER 1):

Fine Pará.—We have had a fluctuating market during the month, and prices, after touching 5s. fell away to 4s. 8½d. Sellers do not seem very anxious to get on, consequently buyers are waiting. There is a report that the Brazilian government is putting a higher duty on rubber to help the banks, who have financed certain holders in Pará; if this is so and the surplus stock be sold, we must look for higher prices in the near future. The American market is steady at ½d. to 1d. above our price; the shipments from Liverpool to New York are smaller than last month. Closing value: Hard fine, 4s. 8d.; Soft fine, 4s. 6d.

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows: "During October the demand for commercial paper has been better than usual at this time of the year, with rates ruling at 5@5½ per cent. for the best rubber names, and 5½@6 per cent. for those not so well known."

NEW YORK PRICES FOR SEPTEMBER (NEW RUBBER.)

	1911.	1910.	1909.
Upriver, fine.....	\$1.13@1.20	\$1.55@1.90	\$1.90@2.15
Upriver, coarse.....	.94@ .99	1.22@1.42	1.12@1.32
Islands, fine	1.06@1.12	1.50@1.82	1.72@2.02
Islands, coarse.....	.62@ .64	.90@ .92	.65@ .82
Cametá .....	.66@ .68	.90@ .98	.83@ .96

African Rubbers.

* NEW YORK STOCKS (IN TONS).

September 1, 1910.....	300	April 1, 1911.....	98
October 1	375	May 1	98
November 1	100	June 1	90
December 1	140	July 1	90
January 1, 1911.....	115	August 1	90
February 1	115	September 1	112
March 1	111	October 1	67

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are unchanged:

	October 1.	November 1.
Old rubber boots and shoes—domestic	9½@ 9¼	9½@ 9¼
Old rubber boots and shoes—foreign.	9 @ 9½	9 @ 9½
Pneumatic bicycle tires.....	4½@ 4¾	4½@ 4¾
Automobile tires	8½@ 8½	8½@ 8½
Solid rubber wagon and carriage tires	9¼@ 9¾	9¼@ 9¾
White trimmed rubber	11 @11½	11 @11½
Heavy black rubber.....	4¾@ 5	4¾@ 5
Air brake hose.....	4½@ 4¾	4½@ 4¾
Garden hose	1¼@ 1¾	1¼@ 1¾
Fire and large hose.....	2 @ 2¼	2 @ 2¼
Matting	7½@ 1	7½@ 1

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.			Total	Total	Total
	Fine and	Medium.	Coarse.	1911.	1910.	1909.
Stocks, August 31.....tons	299	71	=	370	171	156
Arrivals, September	918	422	=	1,340	930	1,157
Aggregating	1,217	493	=	1,710	1,101	1,313
Deliveries, September	946	442	=	1,388	926	1,171
Stocks, September 30....	271	51	=	322	175	142
	PARA.			ENGLAND.		
	1911.	1910.	1909.	1911.	1910.	1909.
Stocks, August 31..tons	3,010	585	910	1,310	1,275	295
Arrivals, September ...	2,515	1,870	2,020	425	1,000	855
Aggregating	5,525	2,455	2,930	1,735	2,275	1,150
Deliveries, September ..	2,835	1,595	2,175	880	697	825
Stocks, September 30.	2,690	860	755	855	1,578	325
World's visible supply, September 30....tons				5,305	3,350	1,637
Pará receipts July 1 to September 30.....				4,960	4,830	4,720
Pará receipts of caucho, same dates.....				910	1,430	820
Afloat from Pará to United States, Sept. 30..				978	347	none
Afloat from Pará to Europe, September 30...				460	390	415

Rubber Stock at Para.

The reduction in stock continues; the figures for the present year being:

1911.	Tons.	1911.	Tons.
January 31.....	2,085	May 31.....	5,350
February 28.....	3,787	June 30.....	4,545
March 31.....	4,214	July 31.....	3,884
April 30.....	5,104	August 31.....	3,450
September 30.....	3,102		

Of the 3,102 tons in stock on September 30, only 317 were in first hands. Out of the remaining 2,785 tons in second hands, 2,700 were held by J. Marquez, who, it has been understood, represents the Bank of Brazil.

The 2,085 tons in stock on January 31 comprised 950 tons in first hands and 1,135 tons in second hands. The actual preponderance of "second-hand" rubber will be noticed.

Para.

R. O. AHLERS & Co. report [October 11]:

As the entries have been quite regular, the market has declined slightly.

CABLED RUBBER CROP RETURNS.

COMPARATIVE rubber crop returns of 6 leading Malayan companies are cabled as follows:

	Total for financial year to September 30, 1911, pounds (dry).	Total for same period last year, pounds (dry).
Anglo Malay	9 months 536,961	470,875
Pataling	221,310	235,957
London Asiatic	221,785	114,369
Golden Hope	73,943	52,568
Selaba	132,896	50,784
Bikam	63,129	16,767
	1,250,024	941,320

ESTABLISHMENT OF RUBBER AUCTIONS AT SINGAPORE.

THE formal opening of the Singapore rubber auctions took place on September 12, the president of the Chamber of Commerce, expressing the best wishes of that body for the prosperity of the rubber trade. Out of 17,425 pounds offered, 9,500 were sold. It is intended to hold auctions every Tuesday.

Plantation Rubber from the Far East.**EXPORTS OF CEYLON GROWN RUBBER.**

[From January 1 to September 25, 1910 and 1911. Compiled by the Ceylon Chamber of Commerce.]

	1910.	1911.
To Great Britain.....pounds	1,010,849	2,098,634
To United States.....	940,177	1,270,529
To Belgium	34,217	444,151
To Japan		39,767
To Australia	3,245	27,614
To Germany	10,479	24,516
To Canada	1,911	12,067
To Italy	841	3,597
To Holland		3,448
To Austria		1,375
To France		117
To India		85
To Africa		35
Total	2,001,719	3,925,935

[Same period 1909, 869,018 pounds; same 1908, 538,432.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

From—	1909.	1910.	1911.
Singapore (to Sept. 19)....pounds	1,827,350	2,499,332	4,231,692
Penang (to Aug. 31).....	1,634,805	1,437,830	3,042,612
Port Swettenham (to August 4) ..		4,706,124	6,795,266
Total	3,462,155	8,643,286	14,069,570

IMPORTS FROM PARA AT NEW YORK.

The Figures Indicate Weight in Pounds.

SEPTEMBER 28.—By the steamer *Ucayali*, from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold	136,500	27,600	75,900	300	=240,300
New York Commercial Co..	69,900	9,400	69,500		=148,800
A. T. Morse & Co.....	39,300	5,900	14,000		=59,200
H. A. Astlett	27,400	700	400	11,400	=39,900
W. R. Grace & Co.....			300	13,200	=13,500
Henderson & Korn	8,600	300	4,000		=12,900
Hagemeyer & Brunn	8,600	3,200			=11,800
Neuss Hesslein & Co.....	6,400	400	1,100	300	=8,200
G. Amsinck & Co.....			2,000		=2,000
Total	296,700	47,500	167,200	25,200	=536,600

OCTOBER 3.—By the steamer *Christopher*, from Manáos and Pará:

Poel & Arnold	321,200	9,400	96,700	6,900	=434,200
New York Commercial Co.	210,000	50,200	39,000	6,200	=305,400
A. T. Morse & Co.....	73,800	9,200	29,000		=112,000
General Rubber Co.....	90,400	7,300	5,800	1,800	=105,300
De Lagottellerie & Co.....	42,100	6,100	15,800		=64,000
Hagemeyer & Brunn	23,600	2,100	2,000		=27,700
Henderson & Korn	7,100		5,300		=12,400
Total	768,200	84,300	193,600	14,900	=1,061,000

OCTOBER 14.—By the steamer *Crispin*, from Manáos and Pará:

Poel & Arnold	269,300	63,900	181,200	24,700	=539,100
New York Commercial Co.	63,700	33,600	40,100	6,700	=144,100
De Lagottellerie & Co.....	91,700	6,800	40,900		=139,400
A. T. Morse & Co.....	55,000	10,700	15,200	13,500	=94,400
General Rubber Co.....	58,400	11,200	10,200		=79,800
Hagemeyer & Brunn	27,200	300	3,300		=30,800
Total	563,300	126,500	290,900	44,900	=1,027,600

OCTOBER 23.—By the steamer *Clement*, from Manáos and Pará:

New York Commercial Co..	214,700	16,100	64,400	500	=295,700
Poel & Arnold	148,800	42,700	45,800		=237,300
General Rubber Co.....	103,000	15,600	53,700	8,100	=180,400
A. T. Morse & Co.....	74,600	6,800	44,900		=126,300
Hagemeyer & Brunn	16,400	700	4,600		=21,700
Total	557,500	81,900	213,400	8,600	=861,400

OCTOBER 23.—By the steamer *Rio de Janeiro*, from Pará:

Poel & Arnold	144,300	21,000	68,700	4,000	=238,000
Henderson & Korn	31,600	1,400	10,600		=43,600
New York Commercial Co..	20,800	5,800	3,300	700	=30,300
De Lagottellerie & Co.....	13,900	1,800	2,000		=17,700
Total	210,600	30,000	84,600	4,700	=329,900

PARA RUBBER VIA EUROPE.

		POUNDS.
SEPTEMBER 29.—By the <i>Adriatic</i> =Liverpool:		
New York Commercial Co. (Fine)	11,500	
General Rubber Co. (Coarse) ..	11,500	
A. W. Brunn (Fine)	3,500	
Poel & Arnold (Fine)	85,000	
Poel & Arnold (Caucho)	70,000	181,500

OCTOBER 2.—By the <i>President Grant</i> =Hamburg:		
New York Commercial Co. (Fine)	15,000	
Poel & Arnold (Fine)	22,500	
Wallace L. Gough Co. (Fine) ..	2,500	40,000

OCTOBER 4.—By the <i>Saramacu</i> =Bolivia:		
General Exp. Comm. Co. (Fine) ..	28,000	
General Exp. Comm. Co. (Coarse) ..	16,000	44,000

OCTOBER 5.—By the <i>Columbia</i> =Liverpool:		
James T. Johnstone (Coarse) ..	13,500	

OCTOBER 9.—By the <i>Amerika</i> =Hamburg:		
A. T. Morse & Co. (Fine)	13,500	
New York Commercial Co. (Coarse)	11,500	25,000

OCTOBER 9.—By the <i>Minnehaha</i> =London:		
Poel & Arnold (Coarse)	45,000	

OCTOBER 10.—By the <i>Saxonia</i> =Liverpool:		
Poel & Arnold (Fine)	240,000	
General Rubber Co. (Fine)	215,000	
New York Commercial Co. (Fine)	13,500	
Raw Products Co. (Coarse)	25,000	
Robinson & Co. (Coarse)	9,000	
Poel & Arnold (Caucho)	56,000	558,500

OCTOBER 13.—By the <i>Baltic</i> =Liverpool:		
New York Commercial Co. (Fine)	11,500	

OCTOBER 13.—By the <i>Pennsylvania</i> =Hamburg:		
Rubber Trading Co. (Fine)	11,000	

OCTOBER 19.—By the <i>Patricia</i> =Hamburg:		
New York Commercial Co. (Fine)	22,500	
A. T. Morse & Co. (Fine)	6,000	28,500

OCTOBER 21.—By the <i>Celtic</i> =Liverpool:		
Muller Schall & Co. (Coarse) ..	13,500	

OCTOBER 21.—By the <i>Irishman</i> =Liverpool:		
General Rubber Co. (Fine)	230,000	
Raw Products Co. (Coarse)	9,000	
Muller Schall & Co. (Caucho) ..	22,500	
General Rubber Co. (Coarse) ..	22,500	284,000

OCTOBER 21.—By the <i>Campania</i> =Liverpool:		
New York Commercial Co. (Fine)	13,500	
Rubber Trading Co. (Coarse) ..	11,500	
Raw Products Co. (Coarse)	13,500	
General Rubber Co. (Coarse) ..	9,000	
Henry A. Gould Co. (Fine)	5,500	53,000

OCTOBER 23.—By the <i>Cincinnati</i> =Hamburg:		
A. T. Morse & Co. (Caucho) ..	11,000	

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

SEPTEMBER 26.—By the <i>Prinz Sigismund</i> =Colon:		
G. Amsinck & Co.	18,000	
A. M. Capen's Sons	5,500	
Otto Gerdan	4,500	
Andean Trading Co.	3,500	
R. Castillo & Co.	2,500	
Caballero & Blanco	1,500	
A. Brigardo & Co.	1,500	
Roldau & Van Sickle	1,000	38,300

SEPTEMBER 26.—By the <i>El Cid</i> =Galveston:		
Continental-Mexican Rubber Co.	*200,000	
Charles T. Wilson	*22,500	*222,500

SEPTEMBER 29.—By the <i>Morro Castle</i> =Mexico:		
Lawrence Import Co.	2,500	
A. Klipstein & Co.	1,500	
George A. Alden & Co.	1,000	
J. W. Wilson & Co.	1,000	6,000

SEPTEMBER 29.—By the <i>El Sud</i> =New Orleans:		
Manhattan Rubber Manufacturing Co.	7,000	
A. N. Rotholz	2,500	
K. Mandell & Co.	1,500	11,000

SEPTEMBER 30.—By the <i>Santiago</i> =Tampico:		
New York Commercial Co.	*345,000	
Poel & Arnold	*22,500	
For Europe	*75,000	*442,500

OCTOBER 2.—By the <i>Adriatic</i> =Liverpool:		
James T. Johnstone	11,000	
In Transit	15,000	26,000

OCTOBER 2.—By the <i>Advance</i> =Colon:		
G. Amsinck & Co.	8,500	
New York Commercial Co.	5,500	
Dumarest Bros. & Co.	4,500	
H. Fellman & Co.	4,500	
A. T. Morse & Co.	3,500	
Langman & Kemp	3,500	
Schutte Bunemann & Co.	2,500	
Jose Julia & Co.	2,000	
Pablo Calvert & Co.	2,000	
Mecke & Co.	1,000	
George A. Alden & Co.	1,000	
Wessels Kulenkampff & Co.	1,000	39,500

OCTOBER 3.—By the <i>Allemania</i> =Colombia:		
Suzarte & Whitney	4,500	
A. Jaramillo & Co.	3,500	
A. Helde	2,000	
G. Amsinck & Co.	1,000	11,000

OCTOBER 4.—By the <i>El Sol</i> =Galveston:		
Continental-Mexican Rubber Co.	*45,000	

OCTOBER 4.—By the <i>Prinz Joachim</i> =Colon:		
G. Amsinck & Co.	5,500	
Mecke & Co.	3,000	
Piza, Nephews & Co.	1,500	
J. Sambrada & Co.	1,000	
United Fruit Co.	1,000	
Roldau & Van Sickle	1,000	
Wessels Kulenkampff & Co.	1,000	
Brandon & Bros.	1,000	15,000

OCTOBER 5.—By the <i>Proteus</i> =New Orleans:		
Manhattan Rubber Mfg. Co.	5,500	
G. Amsinck & Co.	2,500	
Eggers & Heinlein	1,500	9,500

OCTOBER 6.—By the <i>Matanzas</i> =Tampico:		
Ed Maurer	*90,000	
For Europe	*35,000	*125,000

OCTOBER 6.—By the <i>Monterey</i> =Frontera:		
Harburger & Stack	3,500	
H. Marquardt & Co.	2,500	
E. Steiger & Co.	2,000	
General Exp. Comm. Co.	1,500	
George A. Alden & Co.	1,000	10,500

OCTOBER 7.—By the <i>El Valle</i> =Galveston:		
Continental-Mexican Rubber Co.	*125,000	
In Transit	*11,000	*136,000

OCTOBER 9.—By the <i>Prinz Eitel Friedrich</i> =Colon:		
G. Amsinck & Co.	140,000	
Otto Gerdan	9,000	
New York Commercial Co.	4,500	
Scholz & Marturet	3,500	157,000

OCTOBER 10.—By the <i>Asiatic</i> =Bahia:		
J. H. Rossbach & Bros.	40,000	
Adolph Hirsch & Co.	40,000	80,000

OCTOBER 10.—By the <i>El Mundo</i> =Galveston:		
Continental-Mexican Rubber Co.	*80,000	

OCTOBER 10.—By the <i>Antilles</i> =New Orleans:		
G. Amsinck & Co.	3,500	
George A. Alden & Co.	2,500	
Eggers & Heinlein	2,500	8,500

OCTOBER 10.—By the <i>Saxonia</i> =Liverpool:		
George A. Alden & Co.	11,000	
Poel & Arnold	11,500	22,500

OCTOBER 11.—By the <i>Atrato</i> =Colon:		
A. M. Capen's Sons	7,000	
Isaac Brandon & Bros.	2,000	
J. Sambrada & Co.	2,000	
G. Amsinck & Co.	1,000	
Kunhardt & Co.	1,000	13,000

OCTOBER 13.—By the <i>Titan</i> =Colon:		
J. H. Rossbach & Bros.	45,000	

OCTOBER 13.—By the <i>El Cid</i> =Galveston:		
Continental-Mexican Rubber Co.	*85,000	
In Transit	*11,000	*96,000

OCTOBER 13.—By the <i>Mexico</i> =Frontera:		
Herman Klugg	7,000	
H. Marquardt & Co.	5,000	
E. Steiger & Co.	4,500	
Harburger & Stack	4,000	
E. E. Tibbals & Co.	1,500	22,000

OCTOBER 16.—By the <i>El Oriente</i> =Galveston:		
Continental-Mexican Rubber Co.	*90,000	

OCTOBER 16.—By the <i>Albion</i> =Colombia:		
Maitland, Coppell & Co.	9,000	
Mecke & Co.	2,500	
R. Castillo & Co.	1,000	
A. Held	1,000	
Caballero & Blanco	1,000	14,500

OCTOBER 16.—By the <i>Camaguey</i> =Tampico:		
New York Commercial Co.	*45,000	
Ed Maurer	*35,000	
For Europe	*110,000	*190,000

OCTOBER 18.—By the <i>Panama</i> =Colon:		
Isaac Brandon & Bros.	21,000	
G. Amsinck & Co.	20,000	
Pablo Calvert & Co.	3,500	
Dumarest Bros. & Co.	2,500	
Andean Trading Co.	2,500	
Laurence Johnson & Co.	2,000	
W. Loaza & Co. of N. Y.	1,500	
Jose Julia & Co.	2,000	
Mecke & Co.	1,500	
Gillespie Bros. & Co.	1,000	
J. Sambrada & Co.	1,000	
Suzarte & Whitney	1,000	59,500

OCTOBER 19.—By the <i>Momus</i> =New Orleans:		
T. W. Morgan	3,000	
K. Mandell & Co.	2,500	
Wessels Kulenkampff & Co.	1,500	7,000

OCTOBER 20.—By the <i>El Sud</i> =Galveston:		
Continental-Mexican Rubber Co.	*175,000	

OCTOBER 21.—By the <i>Esperanza</i> =Frontera:		
Harburger & Stack	7,000	
Maitland, Coppell & Co.	5,000	
In Transit	2,000	14,000

OCTOBER 23.—By the <i>Prinz Sigismund</i> =Colon:		
Isaac Brandon & Bros.	26,000	
G. Amsinck & Co.	17,000	
Andean Trading Co.	3,000	
New York Commercial Co.	2,500	
Laurence Johnson & Co.	4,000	
J. Sambrada & Co.	3,500	56,000

OCTOBER 23.—By the <i>El Sol</i> =Galveston:		
Continental-Mexican Rubber Co.	*50,000	

OCTOBER 23.—By the <i>Byron</i> =Baltic:		
J. H. Rossbach & Bros.	11,500	

OCTOBER 24.—By the <i>Thames</i> =Colon:		
A. M. Capen's Sons	6,000	
Mecke & Co.	3,500	
G. Amsinck & Co.	1,500	11,000

OCTOBER 25.—By the <i>Antilla</i> =Tampico:		
New York Commercial Co.	*90,000	
For Europe	*75,000	*165,000

AFRICAN.

SEPTEMBER 26.—By the <i>Vaderland</i> =Antwerp:		
A. T. Morse & Co.	33,500	
Henderson & Korn	20,000	
Poel & Arnold	20,000	
Muller, Schall & Co.	13,500	
Raw Products Co.	2,000	89,000

SEPTEMBER 29.—By the <i>Adriatic</i> =Liverpool:		
George A. Alden & Co.	65,000	
Poel & Arnold	34,000	
James T. Johnstone	4,500	103,500

OCTOBER 2.—By the <i>Lapland</i> =Antwerp:		
Wallace L. Gough Co.	13,500	
A. T. Morse & Co.	7,000	20,500

OCTOBER 2.—By the <i>President Grant</i> =Hamburg:		
A. T. Morse & Co.	125,000	
George A. Alden & Co.	25,000	
Wallace L. Gough Co.	34,000	
Poel & Arnold	22,500	
Muller, Schall & Co.	20,000	
Robert Badenhop	9,000	
Rubber Trading Co.	3,500	239,000

OCTOBER 5.—By the <i>Columbian</i> =Liverpool:		
James T. Johnstone	9,000	

OCTOBER 6.—By the <i>St. Laurent</i> =Bordeaux:		
George A. Alden & Co.	22,500	
Rubber Trading Co.	11,500	
Poel & Arnold	7,000	41,000

OCTOBER 7.—By the <i>Cedric</i> =Liverpool:		
Poel & Arnold	45,000	
Wallace L. Gough Co.	5,000	
Ed Maurer	4,500	54,500

OCTOBER 9.—By the <i>Amerika</i> =Hamburg:		
George A. Alden & Co.....	75,000	
A. T. Morse & Co.....	55,000	
Poel & Arnold	28,000	
Wallace L. Gough Co.....	8,000	166,000

	POUNDS.
Wallace L. Gough Co.....	22,500
Rubber Trading Co.....	11,000
Henry A. Gould Co.....	5,500 91,500
OCTOBER 11.—By the Rotterdam=Rotterdam:	
General Rubber Co.....	70,000
OCTOBER 11.—By the Kroonland=Antwerp:	
Poel & Arnold.....	13,500
A. T. Morse & Co.....	56,000
George A. Alden & Co.....	33,000
Muller, Schall & Co.....	13,500
Robinson & Co.....	9,000
Ed Maurer.....	9,000
In Transit.....	15,000 149,000
OCTOBER 13.—By the Cleveland=Hamburg:	
George A. Alden & Co.....	15,500
OCTOBER 13.—By the Baltic=Liverpool:	
Ed Maurer.....	9,000
George A. Alden & Co.....	7,000 16,000
OCTOBER 13.—By the Pennsylvania=Hamburg:	
Wallace L. Gough Co.....	27,000
Poel & Arnold.....	5,000
General Rubber Co.....	4,500
George A. Alden & Co.....	4,500
Robert Badenhop.....	3,500 44,500
OCTOBER 16.—By the Minnewaska=London:	
General Rubber Co.....	56,000
George A. Alden & Co.....	20,000 76,000
OCTOBER 18.—By the Niagara=Havre:	
A. T. Morse & Co.....	13,500
OCTOBER 19.—By the St. Paul=London:	
Muller, Schall & Co.....	11,500
OCTOBER 19.—By the Patricia=Hamburg:	
A. T. Morse & Co.....	20,000
General Rubber Co.....	8,000
James T. Johnstone.....	6,000
Wallace L. Gough Co.....	20,000
Rubber Trading Co.....	7,000
Robert Badenhop.....	3,500 64,500
OCTOBER 21.—By the Irishman=Liverpool:	
Robinson & Co.....	13,500
Poel & Arnold.....	18,000
James T. Johnstone.....	2,500 34,000
OCTOBER 21.—By the Celtic=Liverpool:	
George A. Alden & Co.....	47,000
Poel & Arnold.....	45,000 92,000
OCTOBER 21.—By the Philadelphia=London:	
Poel & Arnold.....	20,000
General Rubber Co.....	11,500
George A. Alden & Co.....	9,000 40,500
OCTOBER 23.—By the Vaderland=Antwerp:	
Poel & Arnold.....	80,000
A. T. Morse & Co.....	27,000
Muller, Schall & Co.....	15,000 122,000
OCTOBER 23.—By the Cincinnati=Hamburg:	
A. T. Morse & Co.....	43,000
Poel & Arnold.....	25,000
General Rubber Co.....	11,500
Wallace L. Gough Co.....	3,500 83,000

EAST INDIAN.

[*Denotes Plantation Rubber.]

	POUNDS.
SEPTEMBER 26.—By the Minneapolis=London:	
Ed Maurer.....	*65,000
New York Commercial Co.....	*33,500
A. T. Morse & Co.....	*30,000
Raw Products Co.....	*4,500
Charles T. Wilson.....	5,000 138,000
SEPTEMBER 26.—By the Vaderland=Antwerp:	
Poel & Arnold.....	*7,000
A. T. Morse & Co.....	*5,500 *12,500
OCTOBER 2.—By the St. Louis=London:	
New York Commercial Co.....	*22,500
Poel & Arnold.....	*15,500
Poel & Arnold.....	10,000 48,000
OCTOBER 2.—By the Lapland=Antwerp:	
A. T. Morse & Co.....	*20,000

	POUNDS.
OCTOBER 2. By the Suruga=Singapore:	
Ed Maurer.....	*15,000
New York Commercial Co.....	*5,500
Otto Isenstein & Co.....	11,500
Haebler & Co.....	11,000
Manhattan Rubber Mfg. Co.....	20,000 63,000
OCTOBER 3.—By the Minnetonka=London:	
Robinson & Co.....	11,500
Poel & Arnold.....	*5,500
Robinson & Co.....	*7,000 24,000
OCTOBER 5. By the Majestic=London:	
Poel & Arnold.....	*70,000
Ed Maurer.....	*11,500 *81,500
OCTOBER 7.—By the Cedric=Liverpool:	
Henderson & Korn.....	*22,500
Ed Maurer.....	*5,500 *28,000
OCTOBER 9.—By the New York=London:	
Poel & Arnold.....	*45,000
Ed Maurer.....	*34,000
Raw Products Co.....	*4,500 *83,500
OCTOBER 9. By the Minchaha=London:	
Poel & Arnold.....	*45,000
New York Commercial Co.....	*33,000
Henderson & Korn.....	*25,000
Robinson & Co.....	*22,500
A. T. Morse & Co.....	*10,000
Poel & Arnold.....	45,000 178,500
OCTOBER 11.—By the Kroonland=Antwerp:	
A. T. Morse & Co.....	*25,000
OCTOBER 11.—By the Oceanic=London:	
Poel & Arnold.....	*35,000
New York Commercial Co.....	*10,000 *45,000
OCTOBER 13.—By the Kiota=Colombo:	
A. T. Morse & Co.....	*55,000
Poel & Arnold.....	*11,500 *66,500
OCTOBER 13.—By the Yeddo=Colombo:	
New York Commercial Co.....	*35,000
Raw Products Co.....	*3,500 *38,500
OCTOBER 16.—By the Minnewaska=London:	
General Rubber Co.....	*115,000
New York Commercial Co.....	*29,000
Poel & Arnold.....	*22,500
A. T. Morse & Co.....	*20,000
James T. Johnstone.....	*15,000 *201,500
OCTOBER 19.—By the St. Paul=London:	
A. T. Morse & Co.....	*45,000
New York Commercial Co.....	*45,000
Henderson & Korn.....	*9,000
Poel & Arnold.....	*15,500
Ed Maurer.....	*3,500
Poel & Arnold.....	7,000 125,000
OCTOBER 21. By the Philadelphia=London:	
New York Commercial Co.....	*25,000
Poel & Arnold.....	*13,500
Ed Maurer.....	*7,000
Poel & Arnold.....	5,000 50,500
OCTOBER 23. By the Vaderland=Antwerp:	
A. T. Morse & Co.....	*20,000
OCTOBER 23.—By the Statzenfels=Colombo:	
A. T. Morse & Co.....	*20,000
New York Commercial Co.....	*15,000
Muller, Schall & Co.....	*5,500
Poel & Arnold.....	*3,500 *44,000
OCTOBER 23.—By the Minneapolis=London:	
Poel & Arnold.....	*35,000
A. T. Morse & Co.....	*45,000
Robinson & Co.....	*10,000 *90,000
OCTOBER 24.—By the Sikh=Singapore:	
New York Commercial Co.....	*25,000
Ed Maurer.....	*25,000
L. Littlejohn & Co.....	*11,500
Otto Isenstein Co.....	*11,500
Wallace L. Gough Co.....	*7,000
Haebler & Co.....	*50,000
Ed Maurer.....	9,000
Otto Isenstein Co.....	4,500 143,500

	POUNDS.
OCTOBER 2. By the Suruga=Singapore:	
In Transit.....	*35,000
Poel & Arnold.....	*5,500 *40,500
GUTTA-JELUTONG.	
OCTOBER 2.—By the Suruga=Singapore:	
L. Littlejohn & Co.....	450,000
Haebler & Co.....	225,000
Wallace L. Gough Co.....	100,000 775,000
OCTOBER 24.—By the Sikh=Singapore:	
L. Littlejohn & Co.....	900,000
Haebler & Co.....	500,000
Wallace L. Gough Co.....	210,000
Poel & Arnold.....	110,000
George A. Alden & Co.....	100,000 1,820,000

GUTTA PERCHA.

	POUNDS.
OCTOBER 2. By the Suruga=Singapore:	
L. Littlejohn & Co.....	45,000
Haebler & Co.....	44,000 89,000
OCTOBER 2.—By the President Grant=Hamburg:	
Robert Soltau & Co.....	9,000
OCTOBER 9.—By the Amerika=Hamburg:	
Robert Soltau & Co.....	9,000
OCTOBER 24.—By the Sikh=Singapore:	
L. Littlejohn & Co.....	45,000
Haebler & Co.....	22,000 67,000

BALATA.

	POUNDS.
SEPTEMBER 26. —By the Maracas=Trinidad:	
American Trading Co.....	17,000
Ed Maurer.....	7,000 24,000
OCTOBER 4.—By the Saramaca=Trinidad:	
Middletown & Co.....	37,000
Ed Maurer.....	25,000
American Trading Co.....	13,500
G. Amsinck & Co.....	8,000 83,500
OCTOBER 10.—By the Marowijne=Demerara:	
G. Amsinck & Co.....	11,500
Ed Maurer.....	11,000
Middletown & Co.....	2,500 25,000
OCTOBER 17.—By the Coppename=Demerara:	
Middletown & Co.....	8,000
Ed Maurer.....	7,000
G. Amsinck & Co.....	7,000 22,000
OCTOBER 20.—By the Guiana=Demerara:	
Middletown & Co.....	7,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—SEPTEMBER.

Imports:	Pounds.	Value.
India-rubber.....	7,383,664	\$6,562,964
Balata.....	248,310	179,199
Guayule.....	500,554	204,594
Gutta-percha.....	39,033	14,479
Gutta-jelutong (Pontianak).....	1,415,286	74,493
Total.....	9,586,847	\$7,035,729
Exports:		
India-rubber.....	146,377	\$137,896
Balata.....	.....	.....
Guayule.....	2,213	886
Gutta-percha.....	.....	.....
Reclaimed rubber.....	30,641	5,872
Rubber scrap, imported....	935,878	\$61,509
Rubber scrap, exported....	356,880	28,628

BOSTON ARRIVALS.

	POUNDS.
SEPTEMBER 5.—By the Pathan=Singapore:	
State Rubber Co. (Ceylon)....	7,500
State Rubber Co. (Jelutong)...	245,000
L. Littlejohn & Co. (Jelutong).....	685,000 937,500
SEPTEMBER 11.—By the Bohemian=Liverpool:	
George A. Alden & Co. (Africans).....	24,000
SEPTEMBER 13.—By the Franconia=Liverpool:	
Poel & Arnold (Jelutong).....	22,500

PARA IMPORTS OF INDIA RUBBER, AUGUST, 1911 (IN KILOGRAMS).

NEW YORK.

EXPORTERS.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.
Gruner & Co.....	79,893	46,632	175,805	38,503	340,833	202,446	15,640	39,500	90,683	348,269
Ad. H. Alden, Ltd.....	42,682	11,302	69,827	47,190	171,001	75,650	12,410	66,628	13,789	168,477
Gordon & Co.....	48,421	3,219	37,877	.....	89,517	24,630	5,000	4,333	12,691	46,654
Suarez Hermanos & Co., Ltd.....	.....	.....	.....	.....	.....	34,633	.....	6,138	24,595	65,366
Pires, Teixeira & Co.....	9,860	340	9,240	.....	19,440	18,700	.....	8,250	.....	26,950
De Lagotellerie & Co.....	17,680	3,740	19,800	.....	41,220	.....	.....	.....	.....	41,220
R. O. Ahlers & Co.....	7,786	.....	6,773	17,237	31,796	1,578	.....	130	.....	1,708
A. de la Riviere & Co.....	18,530	510	9,900	.....	28,940	.....	.....	2,310	.....	33,504
Sundries.....	2,087	5,350	2,111	327	9,875	.....	.....	.....	.....	28,940
Manaos, direct.....	192,105	39,200	45,664	12,266	289,235	223,512	32,396	32,824	87,884	376,616
Iquitos, direct.....	.....	.....	.....	.....	.....	57,200	179	1,940	92,581	151,900
Total, August, 1911.....	419,044	110,293	376,797	115,523	1,021,857	638,349	65,625	162,053	322,223	1,188,250
Total, July, 1911.....	294,212	62,865	347,130	214,267	918,474	599,843	96,127	103,983	335,317	1,135,270

EUROPE.

EXPORTERS.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.
Gruner & Co.....	79,893	46,632	175,805	38,503	340,833
Ad. H. Alden, Ltd.....	42,682	11,302	69,827	47,190	171,001
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NOVEMBER 1, 1911.

No. 2.

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RUBBER STATISTICS FOR SEPTEMBER.

DETAILS.	1911.	1910.	1909.	1908.	1907.
Stocks, August 31.....kilos	522,401	536,560	244,851	874,514	740,514
Arrivals in September.....	306,413	271,042	408,469	189,424	562,889
Congo sorts.....	209,265	211,578	334,265	142,743	490,090
Other sorts.....	97,148	59,464	74,204	46,681	72,799
Aggregating.....	828,814	807,602	653,320	1,063,938	1,303,403
Sales in September.....	393,269	226,694	255,866	409,777	584,398
Stocks, September 30.....	435,545	580,908	397,454	654,161	719,005
Arrivals since January 1...3,186,627	3,029,395	3,571,153	3,663,163	4,064,354	
Congo sorts.....2,350,081	2,350,698	2,659,293	3,095,954	3,476,334	
Other sorts.....836,546	678,697	911,860	567,209	588,020	
Sales since January 1.....3,339,394	2,989,997	3,769,434	4,015,896	4,003,533	

ENGLISH LECTURES ON RUBBER.

A COURSE of lectures on rubber technology will be delivered by Mr. Frederick Kaye (a well-known scientist in that branch), during the coming winter, at the Northern Polytechnic Institute, Holloway, London. This step will mark the establishment of the first practical rubber school in England.

Urging (quite independently), the lack of general knowledge about rubber, a correspondent under the *nom-de-plume* of "Caoutchouc" in writing the "Edinburgh Evening News," says among other pertinent things: "If the directors of the School Board knew the history of their waterproof coat, their motor tire, their rubber sponge, their hot-water bottle, their golf ball, and perhaps their false teeth, or if they knew how many thousands of pounds had to be expended on machinery before . . . such articles could be produced, they might consider whether it were not worth while to try and promote a better and sounder knowledge of a trade, which is increasing in importance every day, and, judging by what has already been done, is likely to have a big future."

EUROPEAN PRICE-CUTTING IN PNEUMATIC TIRES

THE recent price-cutting in pneumatic tires by leading French manufacturers and the consequent injury to the German tire industry has been the subject of disapproval in the German press. Appeals have likewise been made to the patriotism and expert knowledge of German buyers, but have proved ineffectual. That this form of special pleading is repugnant to genuine commercial principles is urged by the "Gummi-Zeitung" in the following words: "It is doubtful whether such an attempt would not have done incalculable harm, not to be again made good. It is to be noticed that Michelins have not only made this reduction for Germany, but for all countries. The contest has therefore broken out along the whole line, and it seems to be the tactics of the firm to forcibly grasp the business at all points. . . . That the pneumatic tire industry cannot permanently work at today's prices, is self evident; the only question being, how many hundred thousand (marks) must first be lost, before this policy is reversed."

Continuing its remarks, the journal in question urges the united action of the German tire manufacturers, by means of an association which would have perhaps counteracted the ruinous policy of the French firm, without following similar tactics. The opinion is likewise expressed, that crude rubber is going up and that there is no reason, except sheer competition, for reducing prices. One advantage which may be looked for, it is added, is the clearing of old stocks at the reduced rates, thus drawing good from evil.

The Hannoversche Gummi-Kamm Company (one of the principal German concerns in that line), has issued a reassuring statement to its shareholders, urging that no cause exists in any way for alarm with respect to the tire market. It is understood that the Continental Caoutchouc and Gutta Percha Company is following the policy of the French manufacturers as to competition.

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INDIA RUBBER WORLD

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HEVEA BRASILIENSIS

GUTTA

GUTTA-PERCHA

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Vol. XLV. No. 3.

DECEMBER 1, 1911.

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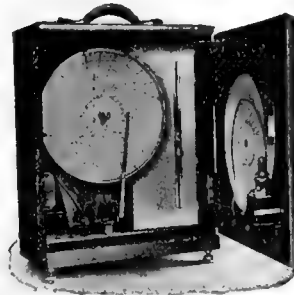
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NEW SOURCES OF CRUDE RUBBER.

MANY years ago, when the Beverly Rubber Co. began to collect waste rubber, and in a crude way reclaim it, rubber manufacturers who used only Pará wore the slow, tolerant smile that betokened scorn of such a puerile proceeding. No look into the future gave them a glimpse of the great business in rubber reclaiming that was foreshadowed by the crude operations at the little red mill. Very similar has been the history of the reclaiming of the modicum of caoutchouc that is contained in some of the lesser crude rubber producers. The first guayule experiments were laughed at. Pontianak for a long time was used simply as a filler. The two above mentioned have, in spite of the prejudices of the conservative, come into their own. And that should awaken the most skeptical observer of matters elastic to a suspicion that there might today be others equally available and valuable. As a matter of fact, there are in the tropical jungles more different kinds of gum-producing trees and vines than there are varieties of rubber scrap in any reclaiming mill. They

vary greatly in rubber content, in coagulating facility, in color, smell and value. If it is worth while to collect worn-out hose and reclaim it, why is it not equally worth while to redeem these gums? The story of the new chicle discovered in forests that have long been worked for *Castilloa* emphasizes the fact that new sources are present even in old fields. That the new gum will prove of value to rubber manufacturers, rather than to chewing-gum masticators, is our fervent hope.

SUCCESSFUL INTERNATIONAL RUBBER EXPOSITIONS.

IT has been remarked by a number of close observers that the best way to judge of the future is by the past, and certainly that is a very rational way in which to view prospectively the International Rubber Exhibition, which is to be held in New York in September, 1912.

Probably every rubber man would admit that such an exposition would be exceedingly interesting, highly educational and of a character to attract a great deal of public attention; but as this is the first attempt of its kind in this country a number of people may be inclined to ask the question, "Will it be a success?" The best reply to this question is to ask another: "If England has had two successful rubber expositions, why shouldn't America have one?" We use much more rubber here than they do in England; in fact, we use as much in this country as all the rest of the world beside. There certainly should be as wide an interest here in this industry, which historically is an American industry, as there is across the water, and surely New York is as promising a place for a great exposition as London. It affords one great advantage in the building selected for the exposition as the new Grand Central Palace, some interior views of which will be found on another page, is an improvement in every way over the building in which the London exhibition was held, and is decidedly more convenient of access, being in the heart of the city and within short walking distance of most of the large hotels.

The first International Rubber Exhibition was held in London in September, 1908. There had been, to be sure, a rubber exhibit two years earlier in the Middle East, but that was practically a local affair, while the London enterprise was, as it was called, "international." That proved a great success. The whole English press treated it as a matter of unique

interest to English readers. The daily papers, the scientific journals, and the financial publications all devoted much space to it. The rubber-producing companies in English colonies sent excellent displays, in which they were rivaled by non-English rubber-producing countries. Thirty different countries sent exhibits and eighteen foreign governments were represented. The exposition was so successful that it was repeated, greatly enlarged and vastly improved, three years later, in June and July of the present year.

The exhibits at this second exposition came from every rubber country of the globe. They covered every variety of indigenous and cultivated rubber; they included practically all the utensils and machinery and processes used in preparing rubber for the market. While the larger part of the exhibits concerned rubber growing, there were many interesting manufacturing displays. The exhibition was a marvel of system and good order. To add to its educational value there was a series of lectures and conferences covering every phase of the rubber industry. Rubber men of all branches of the industry attended in great numbers. Planters, manufacturers, chemists, practical men, and theoretical experts came together and exchanged their views. The exposition provided in fact a comprehensive, though naturally somewhat condensed university course on rubber. Financially it was a success also, the space being eagerly sought and the attendance large.

Now, all that has been accomplished in London and more can be accomplished in New York. The New York exposition will be under the same skilful and experienced management, and the early and enthusiastic response from the leading rubber men of Europe and America is decidedly reassuring.

The public at large has become deeply interested in the rubber industry during the last few years, and the daily press in its quest of interesting news has proforce been compelled to devote a good deal of attention to this great and growing industry; and there can be no question of the deep interest that the metropolitan press would take in this exposition. Its very novelty would ensure it an amount of attention that more commonplace and hackneyed subjects could not secure. As for the rubber trade, there may be some who entertain a feeling of opposition to an exposition simply because it disturbs the even tenor of their way; because it is something outside of the accustomed groove. But there are vastly more who will want to avail themselves of the great opportunities the exhibi-

tion will afford not only for increasing their own rubber knowledge and outlook, but for bringing their particular line to the attention of the public. But even among these there are doubtless some who want to feel assured (it is a natural human trait) that the enterprise will be a pronounced success. To all such it may be said that few expositions have ever been held under more favorable conditions or in advance have given more substantial promise of success.

THE PRINCIPLES OF COTTON SPECULATION.

OWING to the similarity of certain conditions affecting rubber and cotton, as well as their close industrial connection, much interest attaches to a recent letter of Herr Arthur Kuffler, President of the Austrian Cotton Manufacturers' Association, to the Vienna daily, the *Neue Freie Presse*. Its broad statements afford a clear basis of further discussion, and illustrate various points bearing on the subject of cotton speculation.

As Herr Kuffler pertinently remarks, the world is confronted by scarcity of raw material, in conjunction with a large and increasing stock of manufactured goods. This situation he attributes to the fact that the world's cotton spindles have, within the last few years, increased in their aggregate number by 19 per cent. The augmented demand thus created for raw cotton has not been accompanied by a corresponding increase of its production, so that, according to the principles of commercial economy, an advance was natural, but, as Mr. Kuffler says:

"The advance of price witnessed of late years was not caused so much by organized speculation on the cotton market . . . as through an increase of productive capacity, not warranted by the demand for finished goods. Such an augmented output not only put up the price of the raw material, but affected the value of the manufactured product by increasing the available supply of same."

Thus the advanced prices have represented the results of the manufacturers' desire to keep their machinery fully occupied, without reference to the situation of consumption. It is to this cause that the present situation is attributed.

Dealing with this year, Herr Kuffler refers to the fact that in the critical month of July, reports of the almost ideal condition of the crop brought about within a few weeks a fall equaling 20 per cent., thus bringing quotations to a point which, although relatively high, was lower than had been reached at any time since September, 1909. This reduction led to an increased business, through the replenishment of the stocks of consumers of

yarns, which had become depleted through long abstinence from purchases. For a short time it seemed as if spinners would profit by the fall in cotton prices, to make up for past losses, but in this anticipation they were disappointed. Yarns fell in the same proportion as cottons had done, while there was no diminution in the cost of manufacture.

At the time of Herr Kuffler's letter, the European spinning industry was looking forward to still lower prices for cotton, in the hope of an equilibrium being thus established. The subsequent crop reports would seem to have modified these expectations as to an abundant crop, so that, in Herr Kuffler's words:

"The question, whether after years a sufficient provision of cotton will be available, has not yet been answered in the affirmative. The industry must come to see that its rehabilitation does not lie in fluctuations of the price of cotton, but only in the adjustment of production to demand. As long as full occupation of its machinery is regarded as the principal object, the American cotton planter has nothing to fear with regard to his prices.

"In view of the impossibility of finding an outlet for the entire product on the basis of the recently advanced cotton prices, a continuance of the present losses in the cotton industry must be anticipated."

AMERICAN EXPORTS OF LEATHER AND RUBBER FOOTWEAR.

THE October number of THE INDIA RUBBER WORLD contained an editorial commenting on the fact that during the decade ending with last June the manufacturers of belting, packing and other rubber goods had outstripped the makers of footwear in the development of their export business.

While that is quite true, there is another comparison that places manufacturers of rubber footwear in a distinctly favorable light. The Bureau of Statistics, of the Department of Commerce and Labor, has compiled figures covering the exports of leather boots and shoes for the decade ending with December, 1910, showing that during those ten years the exports of American leather shoes increased from a little over 3,000,000 pairs to a trifle over 7,000,000 pairs, or 133 per cent. During that same time the exports of rubber boots and shoes increased from 767,104 pairs for the year ending June 30, 1900, to 3,791,084 pairs for the year ending June 30, 1910, or an increase of close to 400 per cent.

So here is a comparison not at all disagreeable for the rubber men to contemplate. The government's statis-

ticians estimate that for the present calendar year the exports of leather footwear will equal 8,000,000 pairs. The rubber exports during the same twelve months will undoubtedly pass the 4,000,000 mark. In other words, we will send out this year one pair of rubbers for every two pairs of leather shoes, which, considering the more limited field and less general use of rubbers when compared with leather shoes, proves that the manufacturers of rubber footwear, however they may compare with other rubber makers, are certainly more alert to export possibilities than the leather men.

THE MOST INTERESTING THING IN RUBBER.

IF one were to ask a dozen rubber men to name the most interesting feature of the rubber industry, each would probably name the particular line with which he was personally connected. That is human nature. But if asked what was the next most interesting thing he would doubtlessly reply: "The future rubber supply." Taking the industry in its entirety, the future rubber supply is undoubtedly the most engrossing question. Many minds are speculating on it, and statisticians are continuously busy with figures and comparisons.

In our October issue, in an article entitled "Rubber Progress in the Malay States," we cited the cheering prophecy of Dr. Henry N. Ridley, Director of the Botanic Gardens of Singapore, that in 1916 the rubber production of the Malay peninsula would amount to 130,000,000 pounds. In our November issue, there was a very carefully prepared survey of 193 individual companies in the Malay peninsula, which indicated that by 1915 these companies will have an aggregate output of 81,000,000 pounds. At the rate of increase shown by the figures presented in this article, it would certainly be safe to say that by 1916 the yield would amount to at least 30,000,000 pounds more. Therefore when the English rubber statistician, Mr. Herbert Wright, is quoted as saying that "within five or six years Malaysia and Ceylon together should produce more rubber than the whole of Brazil and Central America yielded last year," he seems to be treading on conservative ground.

Taking the consensus of expert opinion Ceylon and the Malay peninsula may certainly be safely looked to, barring unforeseen disaster, for 60,000 tons of rubber,—which would be equal to three-quarters of the present world's supply—within five years from the present time.

IF THEY COULD ONLY GET IT!

IF the rubber industry could only work up to the giddy heights to which it is carried occasionally by the newsgatherers of the daily press, the outlook would certainly give cause for supreme optimism.

A writer in a Wheeling paper, after beginning a story on rubber footwear in the United States by saying that this line of manufacture is of comparatively recent origin, goes on to remark that the value of the annual production of rubber boots and shoes in this country is \$320,107,458. Perhaps he is right; and perhaps a year's output of American rubber boots and shoes is worth the pleasant sum the reporter names. If so, the manufacturers are the proper object of profound sympathy, for they are willing and even glad to take less than one-quarter of that amount. \$320,107,458 would average more than \$4 a pair for all rubber boots and shoes sold in a year, including children's sandals, that retail for 44 cents a pair, and "Tennis" shoes, that sell for 39 cents. If the makers of rubbers could clean up \$4 a pair for their entire product, they could, in three or four years' time buy out the Standard Oil, and pay off the national debt.

AMERICAN EXPORTS OF RUBBER GOODS.

WHILE all the sections of the United States annual statistical returns (quoted on another page) are of interest, those affecting exports of rubber goods are particularly so. From an average of a little more than six million dollars for the years 1905 to 1908 the following totals are shown for the last three years: 1908-9, \$6,615,074; 1909-10, \$9,060,895; 1910-11, \$10,947,248. The average of the two years 1909-10 and 1910-11 was thus about 50 per cent. above that of the preceding four years, as well as over that shown for 1908-9 alone.

That we have entered upon a period of export activity is further illustrated by the separate returns of trade with the three principal foreign customers of this country:

UNITED STATES EXPORTS OF RUBBER GOODS.

To	1908-09.	1909-10.	1910-11.
United Kingdom.....	\$1,761,730	\$2,798,578	\$3,165,246
Canada	953,897	1,565,904	1,861,861
Germany	534,505	713,707	711,831
Aggregate of three countries	\$3,250,132	\$5,078,189	\$5,738,938

Thus the average rate of increase in the aggregate exports to all countries is more than reflected in the development of trade with the three principal outlets,

which, in their combined form take about one half of the total exports of rubber manufactures.

Various new features are represented in the statistical returns in question, particularly the separate figures of tire exports, the amounts of foreign imports re-exported, and a summary, intended to show at a glance the salient points treated in the preceding detailed tables.

BADNESS NOT BIGNESS THE CRIME.

THE most talked-of contribution to magazine literature in recent years is the article entitled "The Trusts, the People and the Square Deal," which appeared in a recent number of the "Outlook," signed by Theodore Roosevelt.

Political prognosticators saw in this a disposition on Mr. Roosevelt's part to get into the political arena once more. Many of the daily papers called it a bid for the presidential nomination. His enemies said that he had gone over, bag and baggage, to the Wall Street crowd. Mr. Roosevelt himself says that the article had no political significance, and that it is simply a repetition in editorial form of views which he expressed many times in speeches and messages when he was President.

The Colonel's statement is unquestionably correct! There is nothing new whatever in his article. The wide interest it has excited is due, not to its novelty, but to its appearance at this particular psychological moment when the Government's attitude toward trusts is the all-absorbing topic.

Mr. Roosevelt's article, reduced to simple terms, is this: That where the only charge that can be brought against a corporation is its size, it should not be subjected to Government attack, size, in itself, being no crime and not properly a valid reason for prosecution.

His second contention is that where a great corporation has been proved guilty of violation of the law, it should be adequately punished, and should not be allowed to continue in business under the same control, by simply undergoing a rearrangement of its corporate form.

In other words, where corporations like the Standard Oil and Tobacco Company, which he mentions, have been proved guilty of illegal practices, it is not adequate punishment merely to put them to the temporary inconvenience of a certain amount of reorganization. The crime should be fastened upon those responsible for it and they should be punished.

On the other hand, a corporation whose only offense is that it is capitalized at \$100,000,000, or even like the U. S. Steel Trust, at approximately \$1,000,000,000, should not, solely on that account be subjected to attack, but should rather be regarded as a proper object for watchful governmental supervision.

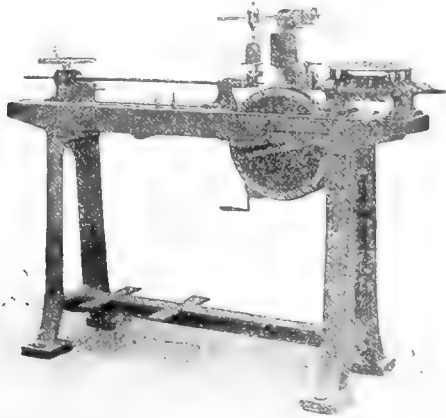
In short, a corporation if guilty should be handsomely punished; if not guilty, should be decently let alone, regardless of size.

Rubber Testing Machines.

IT is worthy of remark that of late years the technique of the rubber industry has ceased to rely solely upon data empirically or accidentally found; being guided by the results of the most methodical tests, often of a scientific character.

With respect to this point, that industry has only participated in the general progressive movement noticeable in other branches

On the other hand, these tests are not sufficiently old to have attained uniformity, through the adoption as standards of the best and most decisive amongst them. Nevertheless, the introduction of their standardization has been proposed by certain testing machine makers, who, with a view to the solution of the problem, have produced testing machines which are intended

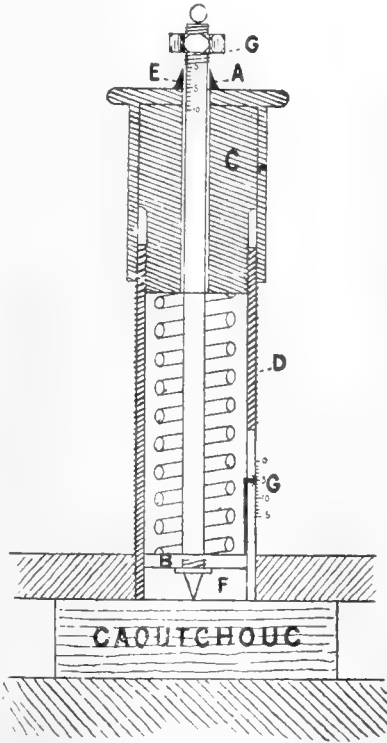


THE P. B. DYNAMOMETER.

of manufacture. In both instances the coarse and rudimentary methods of the past have been found insufficient.

It has proved necessary to satisfy a most exacting circle of clients by doing better, and at the same time cheaper work than that of competitors.

Hence the task has become a delicate one, and manufacturers have been obliged to adapt themselves to modern conditions by calling to their aid chemists and scientists. It is in consequence of this situation that, amongst other points, mechanical tests of compounds and manufactured products have been developed. Some makers have felt the necessity of verifying their own manufactures by examination and tests, with a view to their improvement. They did so, and their competitors little by little realized they had to follow upon the same lines. In every quarter inventive and creative brains have established mechanical tests, applicable to manufactured products or to those in process at the various plants. Consequently these tests were from the very beginning diverse in character; varying from one laboratory to another, both in the methods and the machinery employed.



ELASTO-DUROMETER.
Pierre Breuil System.



PATENT RUBBER TESTER.
Schopper-Dalén System.

to meet the requirements of the largest possible number of rubber manufacturers. These machines rapidly achieved marked success and continue to render incalculable service to many factory superintendents.

DYNAMOMETER P. B.

The dynamometer on the system of Pierre Breuil has been constructed with a view to meeting all requirements; and claims to be a scientific and industrial apparatus for the testing of all materials. Through the ingenious arrangement of the machine it will allow the most diverse tests to be made and a given test to be carried out under variable conditions. The principal tests relating to the rubber industry are:

Production and measurement of strains.
Tests of tension at various temperatures.

Tests of compression at various temperatures.

Tests of plasticity.

Tests of flexion.

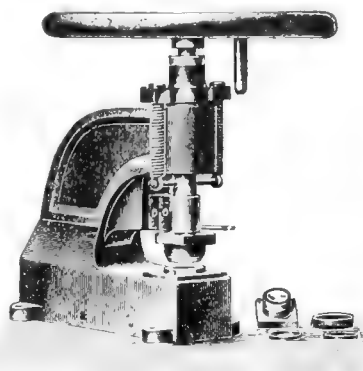
Tests of wear and tear and determination of the coefficient of friction.

Tests of punching fabrics or soft materials.

Tests of cables, cords and metallic wires.

(All the coefficients of importance in the separate tests can be shown by diagrams, which are automatically traced.)

In order to permit at all times the adjustment of the machine, there is a special patented arrangement. The action of the machine is produced by a spring. The inventor has decided to avoid the use of balance levers, which are very bulky and are no more accurate than the special steel spring which he has adopted. He claims that a good quality of spring not subjected to the maximum charge (which totally compresses it) forms a very convenient and accurate testing device.



CUTTING PRESS FOR STANDARD TEST BODIES.

ELASTO-DUROMETER.

The same concern supplies another apparatus on the Pierre Breuil system, called the "Elasto-Durometer," intended (as the name implies) to measure elasticity and toughness. Both these tests are effected by the same machine, through the use of special parts. These machines furnish numerous and detailed results of constant description; being moreover in general use.

SCHOPPER'S RUBBER TESTER.

The firm of Louis Schopper, Leipzig, makes a specialty of the construction of testing machinery for the rubber and allied trades. In contrast with the P. B. machine, Schopper's Patent Rubber Tester is of a dynamometer type, worked by a lever; being one of the most carefully made and most accurate of its kind. With the view of obtaining a maximum of regularity and uniformity, it is operated by water power.

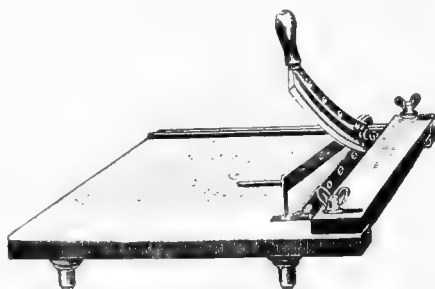
At the same time it is to be noticed that the Patent Rubber Tester is not meant for carrying out the numerous tests which are possible with the P. B. machines. With reference to the preparation of standard test bodies, it has been demonstrated with the Schopper machines that the form of the sample tested exercises considerable influence upon the result of the test; whence the necessity of adopting a standard form. Numerous tests have established the fact that the preferable form is that of a ring.

Together with the Schopper machine there are consequently furnished all the accessories needed for the preparation of test samples; that is to say:

Vulcanizing plates and matrices.

Cutting press (as shown by illustration).

These are the Schopper appliances used by the Royal Testing



APPARATUS FOR CUTTING TEST-STRIPS.

Institute of Gross Lichterfelde for the official tests referred to in the October, 1911, issue of THE INDIA RUBBER WORLD.

CLAYTON, BEADIE & STEVENS SYSTEM.

Like the machines previously referred to, that of Clayton is a dynamometer, giving the resistance, the elongation at the point of rupture, the elongation under a given burden and the hysteresis of gums and compounds—whether vulcanized or not.

The principal difference in contrast with the Schopper and the P. B. machines, consists in the fact that the Clayton Dynamometer has not a spring like the dynamometer P. B., and has not a lever like the Schopper Rubber Tester.

The Clayton dynamometer has an arrangement similar to that of the Riehle cement testing machine. A stream of water reaches a balanced receptacle at the rate of one kilo (2.2 lbs.) a minute. The weight of the water reaching the point gradually, exercises traction upon the sample being tested. At the moment of rup-

ture, the stream of water is automatically stopped and the breaking load is found by weighing the amount of water in the receptacle. The stream can, moreover, be stopped at any time, in order to read off the extension under a given load. The quantity of water in the receptacle can also be gradually diminished. As may be understood, this dynamometer is remarkably easy to handle, while it is capable of giving results equally accurate and varied.

THE SCHWARTZ RUBBER TESTING MACHINE.

In the machine of Professor Schwartz, as illustrated, a standard test body is loaded at a given rate (as in the machines previously referred to); but, without reaching the breaking load. Then the load is gradually diminished at the same rate. Both loading and unloading are graphically recorded, and by the curves on the chart is shown the hysteresis of the gum or compound in question.

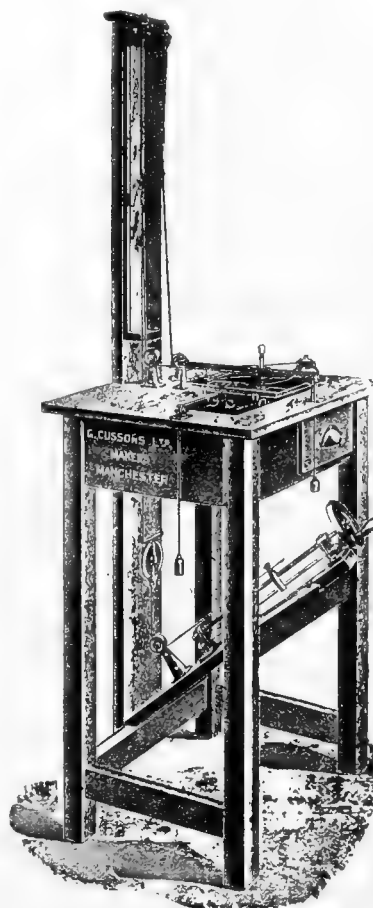
The following physical quantities can thus be determined:—

1. The rate of extension with load.
2. The work done in extension.
3. The work done by the rubber in retracting.
4. The work expended in the rubber itself.
5. The sub-permanent set remaining after a given extension.

OTHER DYNAMOMETERS.

Other dynamometers are those of C. O. Weber and C. L. Delaloe, while in the textile industry there are numerous models varying in strength and accuracy.

One of them is a Schopper dynamometer specially intended for cloth, belting and other materials, and in a general way similar to the Schopper Rubber Tester. In connection with this model, there is used the Schopper apparatus for cutting test-strips, as shown by illustration. These machines, while not having been intended for rubber tests are capable of furnishing excellent results.



PROF. A. SCHWARTZ RUBBER TESTING HYSTERESIS MACHINE.

The Future of Jelutong.

By PHILIP SCHIDROWITZ.

ONE of the most interesting features of the development of the rubber industry in recent years has been the rapid growth of the production of and the trade in the article known to rubber men as Jelutong or Pontianak. The article is so well known in commerce that it is unnecessary to enter into details regarding its general nature, beyond stating that it is a low-grade gum containing roughly 8 to 15 per cent. of rubber and 25 to 40 per cent. of resin, the balance consisting mainly of moisture. Although small quantities of Jelutong are used outside the rubber trade, the bulk of the material is employed in this trade for one of two purposes, viz.: (1) for the production of rubber therefrom by separating out the resin and moisture; (2) for direct use as a friction or filling material. The trade in Jelutong has grown to such enormous proportions that the question of the continuation of the supply is a matter of serious moment to the various branches of the rubber industry. From the point of view of the production of secondary or industrial rubbers, the question of the supply of crude Jelutong may indeed be regarded as only of secondary importance to the similar problem in the Guayule industry.

Twenty years ago Jelutong was practically unknown, but at the beginning of the present century the trade had already risen to considerable dimensions. In the fiscal year ending June 30, 1901, the United States alone imported roughly 4,600 (short) tons of this material. In 1910 the quantity of Jelutong imported into the United States was roughly $5\frac{1}{2}$ times as great, amounting in round figures to 26,000 tons. This represents an enormous increase over the previous record, the highest figures for preceding years amounting to 14,200 tons in 1907 and 12,400 tons in 1909. The latest figures issued, viz., for 1911, show that there has been no material falling off from the high figures for 1910, the figures for the present year being, in round numbers, 25,700 tons. From the course taken by prices it is obvious that the enormous increase in the imports is not due to any excess of production over consumption, but the reverse, for while the average price in 1901 was 2.6 cents per lb., this steadily rose until during the past year it amounted to 5.6 cents.

Areas of Production.—The Jelutong which comes into the open market is produced almost entirely in Sarawak (Borneo), in Dutch Borneo and in Sumatra. There are also a large number of Jelutong trees in the Malay Peninsula, and a certain quantity of Jelutong is, I believe, being produced there, but so far as I am aware none of this comes to the open market, being derived from concessions granted to a British company which utilizes the material directly for the purpose of producing rubber therefrom.

Sarawak.—Sarawak, which lies to the south of British North Borneo, and is a British protectorate under an independent Rajah, embraces a territory of about 50,000 square miles. The whole of this territory is not, of course, Jelutong bearing, the tree growing mainly in the more or less marshy or swampy areas bordering the main rivers. While it is exceedingly difficult to form any idea of the actual Jelutong areas in Sarawak, the capacity for production of this area may be gauged by the fact that whereas Sarawak exported in the year 1902 3,356 tons, this had risen in 1909 to 9,027 tons. In the period November, 1909, to March, 1910, the exports corresponded roughly to 12,000 tons per annum. While opinions may differ regarding the future production of Sarawak, I personally do not take the view that the destruction of trees which was alleged to have taken place in the past has seriously affected the productive capacity of this territory. Judging by what I saw and from

the information I was able to gather during the course of a visit to Sarawak in 1910, there had been no wholesale destruction of trees, but the natives had in many cases shown an inclination to "ring" or overtap trees, which would ultimately have led to very serious injury. The Government of Sarawak, therefore, in 1910 issued regulations for the protection of Jelutong trees, forbidding, under penalty of a heavy fine or imprisonment, improper methods of tapping, and also strictly prohibiting the felling of trees. I think, therefore, that it is fair to conclude that Sarawak will be able to continue to produce at the present rate, viz., roughly 10,000 tons per annum, and it is probable that if the demand remains as at present fresh areas may be opened up which will lead to an increased production. In this connection it must be remembered that the Jelutong worker can earn an exceedingly good living by Jelutong gathering, even when prices are lower than they were some ten years ago. With spot Singapore prices at four dollars (Straits) per picul, the Jelutong worker can earn probably a dollar to a dollar and a half per day, which is a higher rate of pay than that obtainable by the same type of labor for any similar class of work in those parts of the world. With regard to the opening up of fresh territories in Sarawak, these facts must be borne in mind, and it is just a question of prices whether it will pay the Jelutong collector to open up native paths further into the interior or not.

Dutch Borneo and Sumatra.—According to figures published by Dr. Tromp de Haas, the quantity of Jelutong exported from the Dutch possessions in the East (principal ports Pontianak, Banjarmasin and Palambang) amounted in 1910 to roughly 28,000 tons, of which 20,500 tons were exported to the United States. In the past, particularly, I believe, in the Sultanate of Pontianak, a considerable number of trees were cut down by the natives and bled to death. The natives in that district were accustomed to fell and treat gutta-percha trees in this manner, and they appear to have been under the impression that this was the best method for treating the Jelutong tree. I think that this, and not any inordinate commercial greed on the part of the natives or dealers, accounts for the destruction which took place over certain areas. From all accounts, however, this destruction does not appear to have been widespread except in certain portions of the specific areas indicated. The Netherlands Government have taken steps to safeguard the trees in the future, one of the measures being the granting of large concessions for the exclusive right of collection, one condition being that the concessionaire undertakes to have the trees treated in a rational manner. From official and other information which I have been able to gather, there appears to be little doubt that the producing areas in Dutch Borneo and Sumatra may be considerably increased, and with rational working, I see no reason why—provided the demand is maintained—the Dutch possessions should not produce from 30,000 to 40,000 tons per annum.

Federated Malay States.—While in Borneo and Sumatra Jelutong trees grow mainly in marshy lands adjacent to the rivers, and are frequently somewhat difficult of access, this is not the case in the F. M. S., where, curiously enough, the trees appear to favor the slopes of the higher ground. Notwithstanding this, the quality of the Jelutong obtainable from the F. M. S. growth is substantially the same as that derived from other regions. The development of the Jelutong areas in the F. M. S. has only commenced within recent times, and as far as I am aware, no data are available except those which have been published in connection with the concession granted to the United Malaysian Rubber Co. This concession amounts to something like five million

acres, and while the official "counts" of trees undertaken by the Forest Department show that there is considerable variation according to the district, the general conclusion at which I arrived by a study of the details available (during the course of a visit to the F. M. S. last year) was that on the average one tree to four acres, i. e., 1,250,000 trees in all, could be relied on. It is probable that, taking good and bad varieties together, the area under discussion contains double the number of trees indicated, but for the purpose of forming a reasonable estimate regarding possible production of the F. M. S., it will be safer to take as a basis the number of trees (one and a quarter millions) as mentioned. The Jelutong tree, like the *Hevea*, shows marked wound-response, and as the mature trees are very large, frequently rising well over 100 ft. in height and measuring 4 to 6 ft. and more in diameter, the amount of latex obtainable is very considerable. In a series of tappings made by the Forest Department in the F. M. S. in December, 1909, the first tapping of 48 trees yielded 56 catties of latex (1 cattie=1.33 lbs.), the second tapping of 32 trees produced 66 catties. I came to the conclusion that trees might safely be tapped once a week, but assuming that 40 tappings per annum were made, it follows on the above basis that a mature tree should yield about 80 catties, that is, about 106 lbs. of latex per tree per annum. My conclusions in this respect were confirmed by some figures published in connection with an exhibit at the recent Rubber Exhibition. This exhibit, shown by the United Malaysian Rubber Co., was a section of a Jelutong tree from the Sungei Beradi district, in Sarawak. The height of the tree was 75 ft. It had been tapped fortnightly for six months, giving an average yield of 8 lbs. of latex per tapping, that is equal to 96 lbs. in six months' time. Jelutong latex is very rich in solids, that obtainable in the F. M. S. yielding 60 to 70 per cent. of wet Jelutong, containing roughly 10 per cent. of rubber. That is to say, a mature tree will, if properly handled, yield something like 60 to 70 lbs. commercial Jelutong per annum. Assuming, however, that only 40 lbs. were obtained, and that the number of trees referred to above is accurate, and further assuming that the whole of the areas on which the trees are situated can be readily opened up, it is plain that the F. M. S. should yield something like 25,000 tons of Jelutong per annum. With regard to the probability of this taking place, I can only say that, judging by what I saw on the spot last summer and from the information obtainable, I concluded that there should be less difficulty in collection than in Borneo or in Sumatra.

To sum up the question of supply, we are aware that Sarawak at present is producing at the rate of 10,000 tons per annum, and Dutch Borneo and Sumatra at the rate of 28,000 tons per annum, making 38,000 tons in all. With regard to the future, it is not, of course, possible to speak with certainty, but I think, taking all known facts into consideration, that the following is a reasonable estimate:

Sarawak	10 — 15,000 tons
Dutch East Indies	30 — 40,000 "
Federated Malay States	10 — 25,000 "
Total	50 — 80,000 tons

In dealing with the future of Jelutong, the question of raw material available is not the only point worthy of consideration. The question of quality must not be forgotten, and it is also reasonable to enquire whether in the future it will be more expedient to work up the material while it is fresh in the neighborhood of the areas of production, or to export the material to a temperate climate and there to employ it for the purpose of extracting rubber or, alternatively, as a friction material or filler.

With regard to quality, the same elementary principles apply to Jelutong latex as to all other rubber latices; that is to say, the quality of the material produced depends very largely on the method of coagulation and general handling. The bulk of the

material which comes to the market is still coagulated in the most primitive method with kerosene and various native "powders," comprising gypsum, sulphate of copper, alum, etc. While it is noteworthy that rubber of excellent quality may be produced from certain grades of material coagulated in this manner, I have no hesitation in saying (and I am basing this statement not on mere theory, but on observations of which I have personal knowledge) that an immensely improved product can be obtained by applying a rational method. Rational methods of coagulation not only effect a great improvement in regard to the rubber which can be obtained from the crude material, but also on its keeping properties. If there is one point in connection with the production and the future of Jelutong which I wish to emphasize more than another, it is that those interested in this trade should use every means at their disposal to have the old primitive native methods replaced by adequate and modern processes. In another direction also much improvement is possible. While some grades of Jelutong are reasonably clean and free from mechanical impurities, others contain much dirt, chips of wood and even stones. Seeing that the average Jelutong collector is by no means an un-intelligent person, it should not be beyond the wit of man to devise a system of supervision and collection which should result in the disappearance of these unsatisfactory features. It is only necessary to clearly demonstrate to the native collector that it is to his interest to bring to the market clean and well prepared Jelutong, in order that he should do it. The difficulties associated with a problem such as this are necessarily similar to those attaching to the collection of other wild rubbers, but whereas there are certain things that one cannot expect from the semi-savages in certain parts of Africa and Central and South America, one may reasonably hope to get very different results in the case of the extremely intelligent Malays and certain classes of Dyaks, who constitute the majority of the Jelutong collectors.

With regard to the question as to whether it will be more expedient to work up fresh Jelutong in the tropics or to export it to a temperate climate and there deal with it, there is no question in my mind, so far as the production of rubber is concerned, that a quality can be produced from fresh material which is unattainable in the case of goods which have undergone a lengthy journey. The deterioration which takes place in crude Jelutong during transit is undoubtedly a matter of degree, but it is generally admitted that such deterioration does take place, and that it is frequently of a serious nature. As far as my personal experience goes, I have never seen rubber prepared from Jelutong exported say to Europe or to the United States, which is of the same grade as that which can be produced from fresh material. It must also be remembered that fresh Jelutong contains something like 60 to 70 per cent. of water, and that when exported freight has to be paid on this useless material. While I willingly admit that industrial operations on a large scale in a tropical climate involve certain difficulties and disadvantages, I am of opinion, taking all the circumstances into consideration, that the future of Jelutong, in so far as the production of rubber therefrom is concerned, is most likely to develop on the lines of its rational treatment in the East.

A COMPLIMENT TO THE INDIA RUBBER WORLD.

The "New York Journal of Commerce" has recently quoted quite generously from the pages of THE INDIA RUBBER WORLD on various rubber matters, but particularly in reference to the discussion of the listing of crude rubber on the Produce Exchange.

As the "Journal of Commerce" is exceptionally careful as to the accuracy and authoritativeness of its quotations, to be freely cited in its columns is distinctly a compliment.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

"Berba Prieto," a New Gutta Rubber.

By WILLIAM M. MORSE.

SUCH a change has been witnessed during the last five years in the popular estimate of the value of the lesser rubbers and guttas, such as Pontianak, Guayule, etc., that the tropical forester is encouraged to bring still others to the attention of the rubber world. That is why the writer is moved to tell briefly what he knows of Berba Prieto. Unfortunately the photographic plates showing the tree in coming leaf and blossom, and the processes of tapping and coagulating, were destroyed in an accident to the launch as we left the rubber lands. Nor has there been any report from the botanist to whom leaf and flower were sent for identification. So we do not really know what the tree is, but we do know that it produces abundantly a gum that is certainly a high-grade chicle, and that it has a value to the rubber trade even greater than to the chewing gum manufacturer. We have also proved that the tree is very abundant in certain parts of Central America, hundreds of thousands of them having already been located.

The discovery of the tree, or rather of the value of its latex, came about this way: Two years ago, when the *Castilloa* trees in our region had been tapped to their limit and the last drop of latex extracted, the *caucheros* faced a lessened production. They therefore tried other milk producers in order to satisfy the impatient "gringo jefe" by bringing in a full can of milk each day. The cutting of wild rubber in the almost impenetrable forests affords an easy chance for cheating, as the trees are scattered over a large area and often hidden in the valleys and "callejones." After a time it was discovered that the dishonest natives were gathering something besides the regular rubber milk. It showed in this way: When the soft spongy mass of rubber was taken from the coagulating pans and passed through the squeeze rolls, there was a pronounced tendency on the part of the *tortillas* to stick to the rolls. Then in the course of a few days a decided change came over the rubber and it gradually grew black, sticky and eventually assumed the form and appearance of treacle.

A careful investigation conducted by a trustworthy native revealed the fact that some of the tappers were adding to their partly filled cans of *Castilloa* latex the milk of the Berba Prieto. This led to an examination of the tree, which proved to be very plentiful and to be found wherever the *Castilloa* grew. It is a tall, stately tree, with a diameter of two to four feet, and a trunk of forty to fifty feet high before it branches. The bark is comparatively smooth, rather hard and exceedingly brittle. The color in the younger trees is blackish, with irregular, round, whitish areas or spots. The foot of the tree is moderately buttressed.

Knowing that the Berba Prieto was a great producer of "leche" and that its color was identical with that of the *Castilloa* milk, the natives were able to bring in a full can of milk with a minimum of work and little danger of being detected. It was only the tendency to tackiness which betrayed them and opened the way to the discovery of a new and valuable gum.

The difficulties of extracting this gum proved to be many at first. The native *caucheros*, used to working on the ground, could not be induced to climb the trees or work from improvised scaffolds, as they said it made them seasick. They would only tap the trees from the ground. This they did for a time, cutting irregular channels which led the rapidly flowing milk into a tin basin at the foot of the tree. Even with this low tapping it was easy to secure two to three gallons of milk per tree, and it looked as though the *caucheros* could be utilized for a time to good advantage, and later, little by little, taught to climb or work from a ladder.

Another trouble was that the milk did not respond readily to the usual coagulating agents and soured very quickly. It was, however, found that by slowly bringing the fresh milk to the boiling point and keeping it there for a few minutes the gum would coalesce. It was then poured into cooling pans and allowed to stand. In about thirty-six hours the mass would harden from the outside toward the center, and in three to four days it would become hard and brittle all through the mass. The color, however, was black and the general appearance very unsatisfactory. After a few experiments it was found that if copper kettles and copper cooling receptacles were used the gum retained its white color. But when the proper method for coagulating the milk had been discovered another difficulty appeared. It was found that the natives insisted upon following the time-honored method of wiping out the cuts in the tree with their forefingers. As a result, in a short time their hands swelled up, owing to the stickiness of the milk, which stopped up the pores of the skin. This was reason enough to discourage the reluctant workers and they stopped work.

In the meantime, samples of the gum and a five-gallon can of the milk were sent to the States for expert observation and opinion as to the utility of this new product. The first expert reported that the gum failed to look like anything he had seen and was useless; further, that all there was to the milk was a strong, pungent smell. This was discouraging, but another attempt was made, and a sample of gum exactly like the first labeled "Mariato Chicle" was sent to the judgment seat. This was received with the respect due to a newly discovered chicle gum, and a prominent importer agreed to take all there was up to 10 tons at a very good price. Another, a large manufacturer, said it was the finest chicle he had ever seen and wanted to buy the forest that produced it.

Now that Berba Prieto had come into its own and had established itself as a raw product worthy of notice, the question was, how to get it out in quantity?

After various unsuccessful efforts, an experienced chicle gatherer and 10 practical "chicleros" were induced to leave their homes and they were soon on the job. The Chicle Zapote (*Acras Sapota*), the source of commercial chicle, known as the "Nispero," has a bark of a different texture from that of the Prieto. The former is not so large nor so lofty as the new aspirant to chicle honors, and the "chicleros" found themselves confronted with new problems. Several modifications of the usual appliances were made and a camp was soon in operation.

The Berba *chiclero* is equipped with a pair of climbers with exaggerated spurs to hold in the thick, brittle bark of the Berba. A twelve-foot piece of one-inch rope, a five-gallon kerosene tin and the usual *machete* completes his equipment. He commences to cut a channel in the bark near the foot of the tree, leading the milk downward and into the five-gallon tin. An improvised spigot is made by cutting a leaf transversely and slipping the straight edge into a cut made in the bark, at the terminus of the channel, which conducts the white, running milk safely into the can. The channel is cut upwards in an irregular herring-bone form, until the operator is unable to reach higher—then the rope comes into use. He throws an end of it around the tree and makes a loose loop, knotting it near his body. He holds his *machete* in his teeth, throws the loop as high as possible up the tree, holding on with both hands. He then steps up the tree by means of the climbers, bracing himself in the loop of rope which supports his back. He is thus enabled to have both hands free and continues cutting the channel. In this way he mounts thirty to forty feet, until one side of the

trunk has been tapped. In case there are large branches, these are also tapped and the milk led into the main channel. The average tree produces forty pounds of milk, and the gum content is 60 per cent. A man can tap three to five trees a day, producing 120 pounds of gum per day, which will shrink about 16 per cent. in curing and marketing.

As to position, the camps are located adjacent to the area abounding in Berba—in fact, the established rubber camps are pre-empted for the purpose, as it is a strange coincidence that the Castilloa and Berba are found in the same localities. The

milk is first carefully strained and placed in the large copper kettles to boil, very great care being taken to apply the heat gradually, in order to bring the mass by degrees to boiling point. As soon as the entire mass shows agitation, the fire is drawn, leaving enough incandescent coals to continue the boiling for ten minutes longer. The kettle is then lifted from the fire, and the contents poured into large deep copper pans, which hold five gallons each. These are placed where the air can freely circulate around them and in about three days the gum is ready for shipment.

Again Rubber in the Temperate Zone.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I have read your articles on "Rubber Growing in the Temperate Zone" with much interest. You may not know of the planting of Ceara rubber in Germany a few years ago, so I am sending you a description of the venture.

In 1906 Professor Pfadhauer, the well-known German scientist, noted that the rubber tree (*Manihot Glaziovii*) was in no sense of purely tropical growth, and that with suitable preparation of the soil it can be also raised in Europe. About 1904 this expert had planted several two-year-old rubber trees in his garden at Dachau, near Munich, in carefully prepared ground, and by 1906 was in a position to supply the requirements of his household for erasing rubber, garters, etc., from these two small trees.

This success on a limited scale encouraged him to a more extensive trial. According to his views, the climate of upper Bavaria is very suitable for the cultivation of rubber. Hence from being a private enterprise of Professor Pfadhauer, the experiment was subsequently carried out upon a larger scale at Munich itself under the eyes of the Institute of Natural Science. The opinion was at the time voiced by the press that if the anticipated success attended this further trial, wide tracts of land near Dachau would be planted with numberless rubber trees, which would amply cover the needs of Germany for the product.

A company was therefore formed, under the title of the Deutsche Kautschuk-Gesellschaft (German Rubber Co.), with quarters at Berlin, Hamburg, Cologne and Munich. A suitable position and proper soil for the experimental plantation were provided by the above-named Institute near the Botanical Garden, in a location comparatively sheltered from the blasts of winter.

It was found that the Ceara rubber tree (*Manihot Glaziovii*) commences to yield in the fourth year. Consequently it was only necessary in the experimental plantation to secure for the four-year-old trees selected in Brazil, the same conditions as existed where they were growing wild. In the first place the surface to be planted was thoroughly ploughed. The holes in which it was contemplated placing the trees were very deeply excavated, and then half filled with tropical fibrous plants and earth from the Amazon; the nature of the soil being the only point of importance—not the climate.

In execution of this plan three superintendents from the Buen Retiro plantation at Manaos were brought over to Germany. Early in 1906 the rubber trees (which, in consequence of their roots being carefully packed in palm fiber, had suffered no damage) arrived in Munich. They included 45 four-year-old trees and, for a special trial, three trees ten years of age. With the view of avoiding injury to the susceptible roots, the trees were carefully unpacked and wrapped in fiber and Manila mats.

All the holes had been already prepared by being half filled with the tropical plants and earth referred to. The trees were then carefully hoisted in, firmly embedded in the Amazonian earth and surrounded with same to the height of 12 inches.

Particular care had to be taken with the ten-year-old trees to prevent exposure of the naked roots.

Shortly after the planting it could be noticed that the trees warmly embedded in the prepared earth had commenced to blossom.

According to Professor Pfadhauer, the only right course was considered to be the selection for growth in Germany of trees at least four years old. While the transportation and the planting came somewhat more expensive, the risk of growth failing is almost excluded and—above all—a crop can be attained in the first year after planting. According to the results obtained with the experimental plantation, six, eight and ten year old trees would be planted in the Dachau section. The ploughing and preparation of the soil might be considered in that case as liable to be attended with less difficulty; everything being on a large scale and, moreover, such great precautions as would otherwise be necessary, being rendered needless by the sheltered position of that district in question.

Estimates in 1906 made the planting of 600 hectares (1,500 acres) prospectively represent about \$75,000. With an estimated yield in the first year of about 50,000 pounds, an early and liberal dividend was looked for, which might be expected to increase in following years. Even should the price of rubber in Germany be materially reduced, it was anticipated that by the operation before that time of the sinking fund (through which the whole of the plant would have been written off), there would still remain an enormous profit.

BAVARIAN.

* * *

[There are so many contradictions in the communication printed above, and from a practical standpoint the whole venture is so chimerical, that we suspect a joke on the part of our correspondent. Certainly the shipments of Munich grown Ceara rubber are not a feature of today's rubber market. In the photographs sent the earth heaped about the trees looks like Amazonian earth, or African or Icelandic, for that matter. The trees, however, leafless though they be, do not look like Manihots. Is it a joke? Yes?—THE EDITOR.]

\$39,000,000 MORE CRUDE RUBBER IN 1910.

Government statistics show that in 1910 the total value of merchandise imported into this country was \$1,557,000,000, which was \$245,000,000 more than during the preceding year. The value of imports of forest products in 1910 showed an increase of \$55,000,000 over 1909. Of this increase \$39,000,000 was attributed to india rubber.

BERLIN RUBBER FACTORY CHANGES OWNERS.

The offer of Gebrüder Israel for the works of The Gummwarenfabrik vorm. Voigt and Winde, A. G., of Berlin (in liquidation), equalling \$187,500, has been accepted by the shareholders at a special meeting. This arrangement enables the company to return 74 per cent. on the share capital.

African Grass Rubber.

By F. H. HUNICKE.

UNDER the general term of African Grass Rubber Plants the following are included:

(1) *Landolphia Tholonii*; (2) *Landolphia Humilis*; (3) *Carpodinus Leucantha*; (4) *Carpodinus Chytocactus*; (5) *Carpodinus Gracilis*.

The first two are found in the Congo Basin, i. e., in the French and Belgian Congos, in Nigeria and in the northern part of Portuguese Angola. The other three may be classed as the grass rubber plants of Angola, where they are still found in relative abundance. These also extend somewhat into German Southwest Africa. The general distribution of these five varieties is indicated on the chart on following page.

In addition to the above, various writers include the *Carpodinus Lanceolata* and the *Clitandra Henriquesiana*, designating them as false rubber plants, or, in other words, as plants producing latex which does not contain rubber. Anyone at all conversant with tropical plant life will concede that there are innumerable trees, vines and shrubs which give forth a white milky sap similar to the usual rubber latex, yet these are never referred to as false rubber plants.

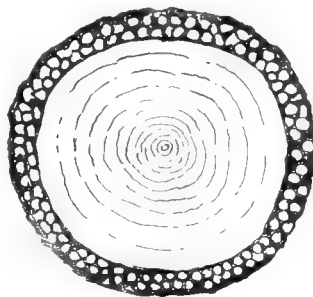
The term "grass rubber plants" is distinctly a misnomer, for none of the above varieties could, under the most liberal construction of the word, be included under the general classification of grasses. They are distinctly species of shrubs, as may be readily seen by reference to the photographs of the three varieties found in the Congo Basin. They should be called "root rubbers," as the rubber is invariably extracted from the roots.

The peculiarity or principal characteristic of these plants is that the shrub is of comparatively insignificant size, while the roots, which contain the latex, are of unusual length. It is a very common occurrence to find the shrub of the *Landolphia Tholonii*, which is by far the most important rubber producer,

laced and entangled. In the sandy soil in which the plant is generally found it is a simple matter to pull up the laterals

without any tools except a machete to cut such other roots as may have grown across and over the laterals.

The specimen of *Landolphia Tholonii*, shown in the photograph, measures but eleven inches in height. It represents a fair average sample. The *Carpodinus lanceolata*, or false rubber plant, will commonly reach eighteen to twenty-four inches, while the *Landolphia Humilis* is often found as high as twenty-four to



CROSS-SECTION OF THE ROOT OF
LANDOLPHIA THOLONII.

thirty-six inches. On the other hand, the root systems of the three plants, as regards size, range in inverse order, that is to say, while the *Landolphia Humilis* is a very much larger shrub than the *Landolphia Tholonii*, its underground development is very much smaller.

The roots of the two *Landolphias* are very similar, and they are not easily distinguished from each other except when they are thoroughly dry, when, by breaking them, the greater rubber content of the *Landolphia Tholonii* is at once evident. The unusual feature of the latter root is that the bark consists of innumerable separate pores which extend longitudinally throughout the length of the root. All of these pores contain thick rubber latex. When the root is pulled out of the ground the latex is in the usual liquid form, but this coagulates very quickly when exposed to the



CARPODINUS LANCEOLATA.

LANDOLPHIA THOLONII.

LANDOLPHIA HUMILIS.

but ten to twelve inches in height above the ground, while underground, radiating from a small tap root, there may be several lateral roots which reach a length, at times, of twenty and even thirty feet. These laterals are about one-half inch thick near the tap root and gradually taper down towards the ends. They are seldom more than three inches under the surface of the ground. The lateral roots send up new shoots which, in turn, form new plants, so that the root system in a fairly dense field of *Landolphia Tholonii* becomes considerably inter-

atmosphere. This change takes place so rapidly that it was found impossible to squeeze the latex out of the roots by running it through a small sized crusher, similar to the ordinary clothes wringer, immediately after the root was pulled out of the ground.

On breaking a piece of dry root it will be found that in each individual pore the latex has coagulated into a fine thread of white rubber. Pulling the two pieces of the broken root apart reveals a complete circle of white silk-like rubber threads.

The crude method of extracting the rubber as practised by the

natives is based on this peculiar physical construction of the root. They pull out the roots, cut them into convenient lengths of perhaps six feet, and tie them into bundles, which they carry to the village, where they cut open the bundles in order to spread the roots out on the ground to be dried by the rays of the sun. When thoroughly dry they place the roots in a pool of water and let them soak for several days for the purpose of softening the



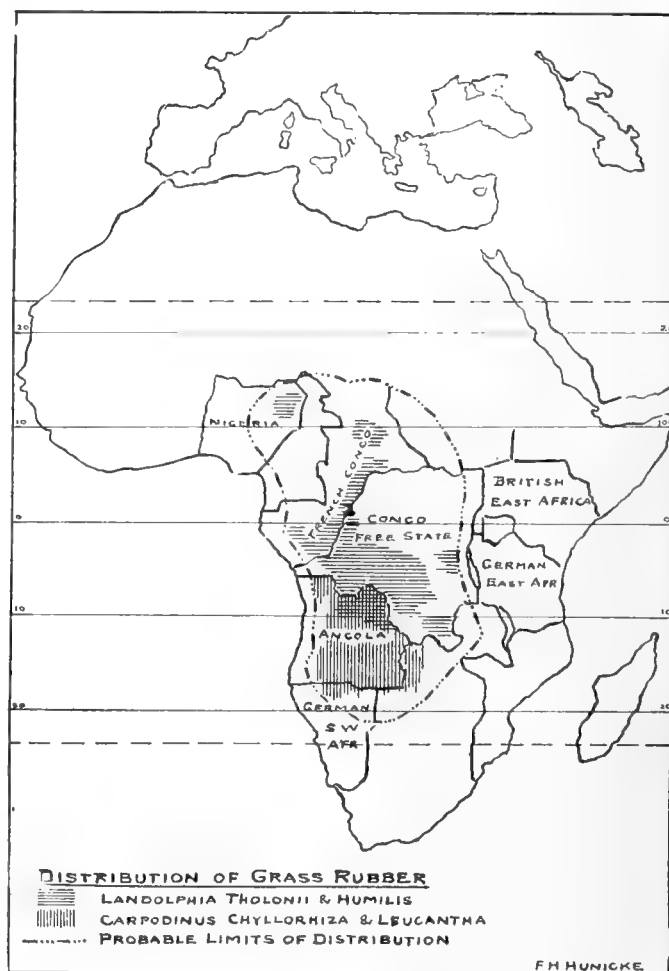
AFRICAN FACTORY FOR EXTRACTING GRASS RUBBER.

bark and loosening it from the woody part. Then they take them to a near-by log or stump of a tree, which serves as an anvil, and by means of a mallet or short club, the bark is separated. The bark is again spread out on the ground to dry. On the thoroughness of this drying depends the future cleanliness of the rubber. Taking a handful of dry bark the native holds it on the anvil, where he again pounds or hammers it with the club or mallet, gradually pulverizing the bark. During this process of pulverization the dust-like bark falls off the anvil, while the particles of rubber unite into a mass. Should the bark be at all damp or wet when the small particles of bark, instead of being blown away by the wind or falling off the anvil, will cling to the rubber, making the separation exceedingly difficult, if not impossible. While this process appears very primitive, it will give excellent results if carried out with care and intelligence. Unfortunately, the average native does not realize how much he would gain by added care. At times the native tries to wash out some of the impurities by working the rubber in water. While this improves the product, it does not overcome the difficulty sufficiently to cause its universal adoption.

It was found on making a few experiments that no plant lends itself so admirably to mechanical treatment as the *Landolphia Tholonii*. In no other rubber bearing plant does the remarkable characteristic of absolutely free, dry and loose rubber occur. Because of this peculiarly favorable condition, almost any machine that will pulverize the bark will liberate or extract the rubber, for, in this particular case, pulverization is extraction. With very slight changes the ordinary pebble mill, a Lane or chocolate mill, an ore stamp mill or any high speed pulverizer will successfully extract the rubber. The simple little contrivance constructed in the field in the crudest way for this special purpose gave remarkable results, for the rubber extracted thereby was very clean and in splendid shape to send to market, as it contained fully 75 per cent. less bark and impurities than similar rubber extracted by the usual native method. The most attractive feature of the little machine, however, is its light weight. In this respect it differs from all other pulverizers, which are universally heavy and cumbersome, and therefore do not lend themselves to being transported through an uncivilized country possessing no transportation facilities.

The *Landolphia Tholonii* is found badly scattered. An acre will seldom produce more than two hundred pounds of roots, from which but ten pounds of rubber can be secured. There are neither pack nor draft animals, nor do wagon roads exist. Everything must be transported on the backs of the natives. And such individual packs seldom pass forty pounds. When, therefore, it is realized that the pebble mill, the unit in the Guayule mill, will consume four thousand pounds of African root bark in one day, that it requires one hundred natives to carry this supply ten miles, that it would require an equal number to start for the factory the next day and fully fifty hands to gather and prepare the roots for the carriers, and that a day's supply would have to be taken from twenty acres, then the importance of a light transportable machine at once becomes evident. Moving a light machine to the field is far easier than carrying the roots to a central factory, for then the weight to be transported is but one-twentieth.

The cultivation on a very large scale of *Landolphia Tholonii* in a thoroughly accessible territory surrounding a central factory, with all modern means of gathering and transporting the roots would not solve the problem, because these roots require so many years before they would be of sufficient size to be of value, even though the yield per acre were most tremendously increased. That such root plantations could never compete with the plantations of *Hevea* in the Far East goes without saying, for both require the same number of years to mature. In the case of the *Hevea* trees, the yield would, after maturity, increase indefinitely



from year to year, while in the case of the *Landolphia Tholonii* the entire yield would be harvested at a sacrifice of all the plants. The wild plants are rapidly disappearing, so that in a few years this source of rubber will become an insignificant factor in the world's production.

"Hevea Brasiliensis" In Mexico.

(By a Special Correspondent.)

REFERENCE has been made on several previous occasions in these columns to the progress effected by the practical introduction into Mexico of the Pará rubber tree (*Hevea Brasiliensis*), and a recent visit to the property of a British corporation known as El Palmar Rubber Estates, Limited—sit-

uating a 70 per cent. stand in germination from imported seed) were about five months old and of an average height of 3 feet. Within the brief space of four months they were observed to have grown to twice this height, a considerable proportion reaching even as much as 9 feet, with a girth, at 1 foot above the ground, of 2½ inches—results comparable with the best obtained in the East. These seedlings have since been successfully transplanted into the field, and an order has been placed for 100,000 more seed, which consignment is now almost daily



NURSERY OF "HEVEA," TEN MONTHS OLD, AT EL PALMAR, WITH PLANTATION OF CASTILLOA IN BACKGROUND.

uated near the station of Tezonapa on the Vera Cruz and Isthmus Railway—afforded the writer an opportunity of studying more closely what had been accomplished there, and of amplifying details already given, in respect to this interesting and important departure. When the original experimental nursery of



NURSERY OF "HEVEA," TEN MONTHS OLD, AT EL PALMAR.



NURSERY OF "HEVEA," SEVEN MONTHS OLD, AT EL PALMAR.

Hevea at El Palmar was first seen by your correspondent in March of this year the plants (in number some 7,000, repre-

expected to arrive, specially prepared ground being in readiness for the same.

Other estates in Mexico upon which tentative trials have been made with *Hevea* are those of La Buena Ventura, on the Isthmus of Tehuantepec; Batavia, in the District of Tuxtepec, State of Oaxaca; and El Chival and Hular Ramirez, in the State of Chiapas. One of these trees on the first-named property, when five years old, measured 20 inches in circumference, at 3 feet above the ground. At Batavia there are about fifty specimens, from seven to ten years old, growing in a clay soil. Some of them have borne seed several times, and, according to the latest reports, all are in a flourishing condition.

It is worthy of mention, notwithstanding the much earlier trials of individual planters and planting companies, as indi-

cated in the foregoing, that the Agricultural Section of the *Departamento de Fomento* of the Mexican Government has lately imported from Ceylon several thousand *Hevea* stumps, having distributed and delivered them, in lots of from 50 to

the course of an instructive lecture on *Hevea* cultivation in those regions, had stated that the total precipitation there was distributed over six months of the year. This would seem to be an exceptional and extreme case, similar conditions certainly not prevailing in any of the rubber planting districts of Mexico, where, as a matter of fact, both rainfall and temperature are generally suitable for *Hevea*.

Hevea exhibits in the early stages of its development a peculiar physiological phenomenon in what is termed periodicity of growth. Instead of any continuous growth, as in *Castilloa*, a series of distinct sectional growths appear to be made during the year; the standard or main stem shooting up with great rapidity from a matured terminal bud to the extent of 1 or 2 feet within a period of a month or six weeks. Growth then temporarily ceases, and the newly produced section more or less ripens during the succeeding quiescent interval of a month or two, when the activity of the plant is renewed in a similar manner. The typical form of the *Hevea* tree, for the first two or three years, is slender and whip-like, swaying with the least movement of the air, this being in marked contrast with the rigid and stocky constitution of *Castilloa*; but during the fourth or fifth year the tree begins to assume a more stable form, when whorls of lateral branches, more or less regularly disposed, are developed and steady trunk expanse ensues.

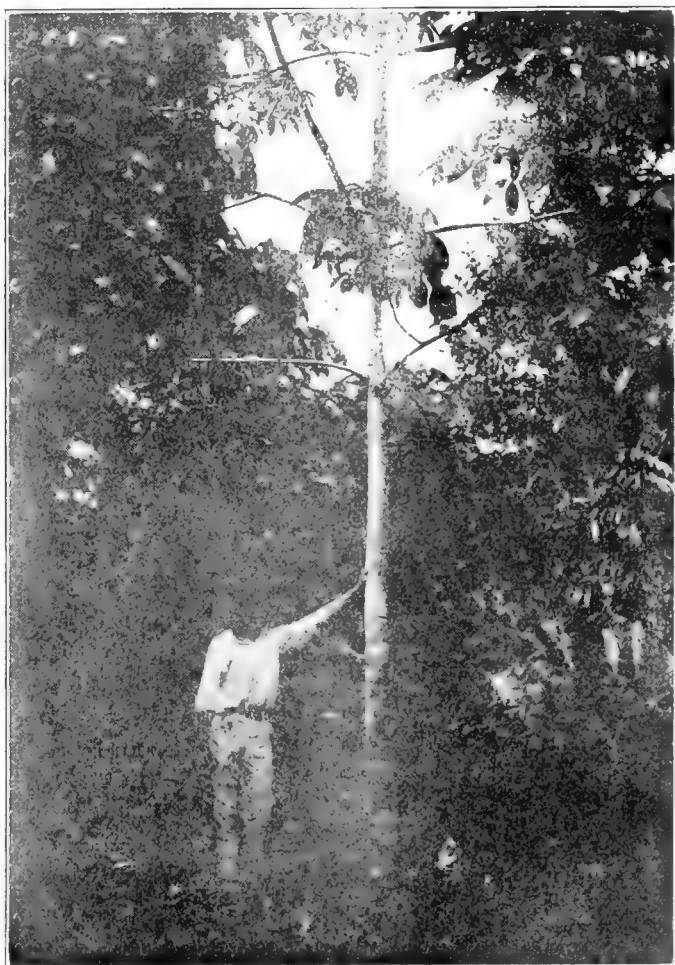


HEVEA, FIVE YEARS OLD, AT LA BUENA VENTURA.

500, free to all *bona fide* applicants, with the object of promoting tests of this culture under varying physical conditions, reports embodying such data being invited as to the results secured.

With regard to the satisfactory growth of *Hevea* that has been noted in Mexico, so far as experience has gone, it may be contended that such evidence may later prove as delusive as it cannot be denied has been the case, unfortunately, with former anticipations respecting *Castilloa* in Mexico. This possibility is, however, measurably disposed of by the fact that in certain places where *Castilloa* has not done well, perfectly healthy *Hevea* trees, five and six years old, are to be seen today. *Hevea* appears to be far less capricious than *Castilloa*, adapting itself much more readily to a greater variety of soils.

It has frequently been maintained that a prolonged season of rainfall is essential to the well-being of *Hevea*; but it has been found in practice that, given a soil sufficiently deep and granular in character to provide adequate capillarity from the lower water level, the best growth has been attained with a moderate but well distributed rainfall, ranging between 90 and 120 inches per annum. It is held, moreover, by some, that a well-defined dry season is a natural advantage, as tending to check excessive transpiration. Apropos of this point, the writer learned in conversation with Mr. J. C. Harvey, shortly after that gentleman's return from London (where he went to attend the recent International Rubber Exhibition) that the Director of the Agricultural Department of the Indo-French Colonies of Cochin China, in



HEVEA, FIVE YEARS OLD, AT LA BUENA VENTURA.

With reference to the detail of planting distance for *Hevea*, experience seems to have definitely relegated very close planting to the past. Mr. H. A. Wickham, the well-known pioneer of *Hevea* cultivation in Ceylon and Malaya, has gone so far as to advocate planting at such apparently extreme distances as 30 to 40

feet; but the preponderance of authoritative opinion places the distance rather at from 16 x 16 feet to 20 x 20 feet, and certainly the latter (giving, respectively, 120 and 110 trees to the acre) would allow liberal space for root and branch development for a good many years.

As to methods of cultivation, complete clean weeding, as against suitable cover growth between the rubber trees, is still a debatable question, although the late Mr. J. B. Carruthers, of Trinidad, who had devoted much special study to it, was very decided and urgent in his view as to the actual necessity of the latter method for the restoration of humus, the aeration of the soil and the prevention of erosion. Perhaps a *via media*, involving the keeping in subjection of weed growth until the trees commence to shade the ground, and then permitting the natural herbaceous vegetation to come up between the rows of rubber trees, would commend itself to most planters on practical and economical grounds.

There is in Mexico one enemy to *Hevea* that must, from the very first, be seriously reckoned with, namely, the "Tusa," as it is called in this country, a subterranean rodent, commonly known in the United States as the gopher (*Geomys bursarius*). The species found in the tropical sections of Mexico (and known to occur at least as far south as the Isthmus of Panama) is rather larger than the North American species, but appears to be identical in habits. In Chiapas this pest is, or was, a grave menace to young plantings of *Castilloa*, and on one estate with which the writer is familiar, men had to be specially and regularly employed in trapping the vermin. On the Isthmus of Tehuantepec the gopher has not shown any particular liking for *Castilloa*, but has confined its depredations mainly to cacao. These animals, however, did much damage to young *Hevea* trees there, and constant vigilance had to be exercised to prevent them from destroying all such trees. The fondness of the gopher for *Hevea* is probably due to the large percentage of starch contained in the roots of that tree; and it would seem well, in setting out *Hevea* in Mexico, to make a systematic attempt to exterminate this vermin immediately after the burning of the clearing. To this end all colonies of gophers should be located and marked in some easily visible manner, concurrently with the staking of the ground, proper traps being set at the time, as the least delay is dangerous. In case of failure to capture the animals by such means after persistent effort, the only thing left to do is to dig them out of the ground with spades. Bi-sulphide of carbon, introduced into the subterranean passages by soaked pieces of cotton waste, has been used with considerable success; and if the gopher inhales the fumes given off by this chemical, death is sure, but one rarely has the certain evidence that the animal has been killed, while trapping and digging them out leave no doubt on this score. Once thus annihilated, immunity from the pest may be assured for some time, and, when making subsequent cleanings of the planting, its possible entrance from contiguous breeding grounds may be similarly dealt with.

Considering, on the other, hand, the non-existence in Mexico of that deadly vegetable parasite, *Fomes semitostus*, and the hardly less destructive insect pest, *Termes Gestroi*, against the ravages of which planters in the East have ever to be on the alert, we may count ourselves here, in the light at least of present knowledge, relatively fortunate. (The above-named termite is quite distinct from the Mexican species, in that it penetrates into, and works upon, living trees; while the latter—commonly known as the "Comején—only attacks dead wood.) Following the best scientific advice, which a beneficent government places at their disposal, planters in the East are now going to the vast expense of removing all stumps and roots from lands destined to the planting of *Hevea*, in an organized effort to minimize the propagation of *Fomes semitostus*, which is classed as a contagious disease fungus, spread by underground mycelium.

Without reflecting upon the possible profitability of *Castilloa* cultivation in Mexico where the natural elements are thoroughly favorable, it must be conceded, in view of the higher productive capacity of *Hevea*, as compared with any other rubber yielding tree, that the successful establishment of a planting of *Hevea*, under suitable conditions, cannot but greatly enhance the speculative value of any estate so exploited, and upon which surplus forest or other appropriate virgin areas are yet available; and it would seem that the prospects with regard to this culture in Mexico are sufficiently encouraging to warrant its adoption on cautious lines as a potential means of compensation for the limited realizations of *Castilloa*.

CULTIVATION OF "HEVEA" IN BRAZIL.

ONE of the most interesting chapters of the report issued by the Turin Exposition on the State of Pará (reviewed in another column), is that dealing with the measures which have been taken for the development of *Hevea* culture in that State.

While excellent lands were available, of a character appropriate to the proposed cultivation, it was necessary to obtain the co-operation of the Government, in the form of such concessions as would attract capital. Other points calling for like attention were the scarcity of labor as well as the high cost of transportation.

By the State enactments of November 5 and 6, 1909, guarantees were conceded of interest, premiums and other favors to national and foreign companies, or even to individual agriculturists, having in view the cultivation of *Hevea Brasiliensis* or *Cacao* within the territory of the State.

In consequence of this legislation some grave obstacles were partly removed. Among the steps taken by the State Government was the establishment of experimental fields intended for promoting the cultivation of *Hevea* and cacao, at its agronomical stations of Igarapè, Assu (a short distance from the Braganza railroad) and of Belem; with a view to giving practical instruction to new planters. The results of these official plantations are said to have been worthy of commendation.

At the Orphan Institute of Santo Antonio do Prata there is a plantation of *Heveas* in blossom and of cacao, in a lofty and sandy location. This plantation the Government intends to bring up to 100,000 trees of one or other species.

Subsequently to the promulgation of the laws of November, 1909, and up to December 26, 1910, applications had been received from 42 agriculturists desirous of being inscribed as competitors for premiums, and intending to plant about seven million *Heveas* as well as two million cacao plants. The proportion of the above, representing foreign capital, was about two million *Heveas* and a nearly equal number of cacao plants.

Two companies, desirous of availing themselves of the privileges granted by the enactments referred to, proposed to cultivate a total area of 50,000 acres, granted free on the terms of the statute; each company agreeing to plant 20,000 trees annually. The plantations were to be situated: the first in the Lower Amazon territory, and the second on lands between the River Guamã and the Prata Institute (already referred to).

The co-operation of the National Government has been the subject of a project submitted to the Federal Chamber of Deputies by the representatives of the State of Pará, for promoting the cultivation of *Hevea Brasiliensis* and cereals in Amazonia, their natural habitat.

In conclusion, the report states: "Amazonia is the best region in the world for the extensive and profitable cultivation of *Hevea* and cacao. No other country is in a position to compete with it as to fertility of soil, favorable conditions of climate for this description of culture, potentiality of production, and quality of products. . . . Predominance in rubber production will belong to Amazonia in the same way as that of coffee does to São Paulo."

Official India-Rubber Statistics

For the United States Fiscal Year Ended June 30, 1911.

INDIA RUBBER.

I.—Imports of Crude India-Rubber, by Countries.

FROM—	Pounds.	Value.
<i>Europe:</i>		
Belgium	4,473,202	\$5,506,954
France	3,169,586	3,720,334
Germany	6,140,045	6,506,868
Netherlands	140,364	123,893
Portugal	1,752,468	1,563,532
United Kingdom	15,953,233	20,788,892
Total	31,628,898	\$38,209,573

<i>North America:</i>		
British Honduras	17,458	\$18,325
Canada	25,154	17,115
Costa Rica	121,346	96,954
Guatemala	129,933	70,795
Honduras	88,748	80,660
Nicaragua	732,842	560,686
Panama	216,846	144,172
Salvador	35,766	19,874
Mexico	853,805	822,651
British West Indies	1,446	998
Total	2,223,344	\$1,832,230

<i>South America:</i>		
Brazil	31,020,764	\$28,521,865
Colombia	933,361	692,188
Ecuador	798,308	638,240
British Guiana	2,574	1,994
Dutch Guiana	852	478
Peru	560,933	579,530
Venezuela	209,101	177,073
Total	33,525,893	\$30,611,368

<i>Asia:</i>		
Chinese Empire	1,800	1,512
British India	718	588
Straits Settlements	2,002,360	1,521,392
Other British Indies	2,598,649	4,006,953
Japan	7,685	8,980
Dutch East Indies	24,476	21,192
Total	4,635,688	\$5,560,617

<i>Africa:</i>		
British South	3,135	2,195
British East	29,302	28,620
Total	32,437	30,815

Grand total	72,046,260	\$76,244,603
Total, 1909-10	101,044,681	\$101,078,825
Total, 1908-09	88,359,895	61,709,723
Total, 1907-08	62,233,160	36,613,185
Total, 1906-07	76,963,838	58,919,981
Total, 1905-06	57,844,345	45,114,450

II.—Imports of Crude India-Rubber, by Customs Districts.

AT—	Pounds.	Value.
Boston	504,963	\$530,812
New York	71,092,415	75,343,972
Philadelphia	358	533
Galveston	595	732
Mobile	2,000	1,971
New Orleans	339,825	275,996
Arizona	4,262	4,148
Paso del Norte	212	223
Los Angeles	579	406
Puget Sound	412	94
San Francisco	75,686	64,587
Champlain	19,350	12,138
Chicago	1,140	1,137
Cuyahoga	800	1,996
Detroit	2,259	4,007
Huron	333	676
Milwaukee	10	25
Niagara	855	834
Cincinnati	22	45
Louisville	184	91
Total	72,046,260	\$76,244,603

III.—Imports of Manufactures of India-Rubber, by Countries.

FROM—	Value.
Austria-Hungary	\$15,577—

Belgium	36,754—
Bulgaria	1,013+
France	68,322
Germany	438,302
Gibraltar	10+
Italy	2,841—
Netherlands	254—
Norway	18—
Russia in Europe	15,170+
Sweden	128+
Switzerland	711+
Turkey in Europe	406+
United Kingdom	288,669—
Canada	5,864+
Mexico	58+
British West Indies	51—
Hong Kong	229+
Japan	526—
Australia	222+
Total	\$875,125

Total, 1909-10	\$1,154,347
Total, 1908-09	1,391,770
Total, 1907-08	1,956,590
Total, 1906-07	2,262,783
Total, 1905-06	1,992,413

IV.—Imports of Manufactures of India-Rubber, by Customs Districts.

AT—	Value.
Baltimore	\$24,863
Bangor	266
Boston	157,324
Fall River	2,923
Georgetown, D. C.	76
Newark, N. J.	1,092
Newport News	3,479
New York	605,319
Philadelphia	15,254
Porto Rico	1,034
Providence	1,418
Galveston	568
New Orleans	7,955
Tampa	2,129
Hawai	2,988
Los Angeles	1,390
Portland (Oregon)	803
Puget Sound	842
San Francisco	7,774
Buffalo Creek	960
Champlain	247
Chicago	16,828

V.—Exports of Manufactures of India-Rubber (and Gutta-Percha), by Customs Districts.

FROM—	Belting, Packing and Hose.	Boots and Shoes.	Tires— For Automobiles.	All Other.	All Other Rubber.	Total Value.
Baltimore	\$4,360				\$568	\$4,928
Bangor	4,379	\$117	\$1,009	\$169	3,769	9,443
Boston	24,430	569,658	1,779	1,779	306,522	908,047
New York	1,309,710	1,520,122	1,459,198	483,898	2,362,120	7,135,048
Passamaquoddy	1,314		370		2,297	3,981
Philadelphia	17,806	1,096	84	7	1,378	20,371
Galveston	291		20		696	1,007
Key West			420		1	421
Mobile	153		388		35	576
New Orleans	11,594	524	1,659	3,916	5,845	23,538
Arizona	57,630	31	3,148	1,928	7,613	70,350
Brazos de Santiago	556		30		731	1,317
Corpus Christi	43,713	312	122,157	21,258	30,503	217,943
Paso de Norte	26,183	29	1,504	704	4,556	32,976
Saluria	36,622		2,610	897	7,880	48,009
Alaska	29,917	15,812	159	208	460	46,556
Los Angeles	433		70		65	568
Puget Sound	23,840	11,508	78,326	28,983	92,840	235,497
San Francisco	350,054	11,296	46,520	11,877	37,806	457,553
Buffalo Creek	32,208		147,625	9,155	188,580	377,568
Cape Vincent			173	275	353	801
Champlain	4,034	724	8,723	9,520	86,215	109,216
Chicago	424				19,149	19,573
San Diego	1,159	279			8	1,448
Detroit	33,803	3,854	97,435	4,731	69,785	209,608
Duluth	554	1,442	57		7	2,060
Huron	1,858	756	2,289	13	10,604	15,520
Memphremagog	21,204	60,661	3,085	46	166,879	251,875
Minnesota	7,086	2,598	55,256	58	73,027	138,025
Montana and Idaho	3,268	275	664		701	4,908
Niagara	98,081	2,655	19,536	11,214	189,730	321,216
North and South Dakota	9,701	3,905	19,205	558	19,763	53,132
Oswegatchie	542	157	739	74	40,438	41,950
Superior	1,544	324			1,136	2,904
Vermont	4 19	11,395	6,990	1,200	154,589	178,423
Other ports	716				176	892
Total	\$2,163,416	\$2,219,430	\$2,085,107	\$592,470	\$3,886,825	\$10,947,248

Cuyahoga	469
Detroit	259
Genesee	1,835
Huron	214
Miami	259
Milwaukee	672
Minnesota	3,652
Niagara	266
Vermont	378
Cincinnati	5,190
Denver	213
Grand Rapids	121
Indianapolis	81
Kansas City	3
Pittsburgh	1,776
St. Louis	2,788
Syracuse	46
Other ports	1,471
Total	\$875,125

VI.—Guayule Gum.

FROM—	Pounds.	Value.
Mexico	19,749,522	\$10,443,157

Previous to 1910 Guayule was not classified separately from other India rubber.

GUTTA PERCHA.

I.—Imports of Crude Gutta-Percha by Countries:

FROM—	Pounds.	Value.
France	1,135	\$1,496
Germany	191,731	120,242
United Kingdom, England	16,537	6,036
United Kingdom, Scotland	9,051	22,595
Panama	26,577	13,792
Mexico	825	412
Straits Settlements	1,402,935	225,930
Philippine Islands	130	45
Total	1,648,921	\$390,548

Total, 1909-10	784,501	\$167,873
Total, 1908-09	253,559	82,136
Total, 1907-08	188,610	100,305
Total, 1906-07	546,890	201,339
Total, 1905-06	500,770	188,161
Total, 1904-05	665,217	210,188

GUTTA-JELUTONG (PONTIANAK.)

FROM—	Pounds.	Value.
France	114,281	\$6,857
United Kingdom	7,458	285
Straits Settlements	51,284,467	2,864,673
Dutch East Indies	14,666	818
Total	51,420,812	\$2,872,633
Total, 1909-10	52,392,444	\$2,419,223
Total, 1908-09	24,826,296	852,372
Total, 1907-08	22,803,303	1,039,776
Total, 1906-07	28,437,660	1,085,098
Total, 1905-06	21,390,116	733,074
Total, 1904-05	19,104,911	641,319

BALATA.

FROM—	Pounds.	Value.
Netherlands	41,182	\$42,273
United Kingdom	146,781	125,347
Panama	21,555	8,419
Salvador	420	162
British West Indies	40,877	27,867
French West Indies	2,820	2,397
British Guiana	92,991	75,012
Dutch Guiana	281,903	199,079
French Guiana	26,151	19,216
Venezuela	215,625	124,930
Total	878,305	\$624,702
Total, 1909-10	399,003	\$196,878
Total, 1908-09	1,157,018	522,872
Total, 1907-08	584,582	276,756
Total, 1906-07	799,029	305,041
Total, 1905-06	374,220	152,689

II.—Value of Imports of Manufacture of Gutta Percha by Countries:

FROM—	Value.
Belgium	\$1,019
France	3,343
Germany	44,664
United Kingdom	11,763
Canada	494
Total	\$61,283

SCRAP RUBBER.

I.—Quantity and Value of Imports, by Countries.

FROM—	Pounds.	Value.
Austria-Hungary	105,934	\$4,213
Belgium	768,868	65,246
Bulgaria	16,620	1,532
Denmark	216,753	18,239
Finland	237,600	24,962
France	3,692,876	331,631
Germany	2,773,209	230,846
Italy	19,348	1,856
Netherlands	451,968	35,614
Norway	339,372	31,591
Roumania	22,000	1,840
Russia in Europe	7,119,625	638,367
Spain	14,329	893
Sweden	1,171,528	113,391
Switzerland	114,382	11,196
Turkey in Europe	614,137	55,900
United Kingdom	5,227,764	471,064
Canada	3,117,882	231,299
Panama	95,766	3,734
Mexico	208,971	15,852
Newfoundl'd & Labrador	13,077	1,206
British West Indies	1,830	163
Cuba	157,780	13,129
Brazil	2,145	639
Chile	4,409	299
British Guiana	429	6
Chinese Empire	161,906	9,128
Hongkong	100,640	5,860
Asiatic Russia	156,996	13,877
Turkey in Asia	10,799	772
Australia and Tasmania	7,258	426
New Zealand	1,799	99
Total, 1910-11	26,948,000	\$2,334,870
Total, 1909-10	37,364,671	\$2,998,697
Total, 1908-09	20,497,695	1,543,267
Total, 1907-08	16,331,035	1,496,822
Total, 1906-07	29,335,193	2,608,987
Total, 1905-06	24,756,486	1,721,678
Total, 1904-05	15,575,214	953,439

II.—Quantity and Value of Exports, by Countries.

T	Pounds.	Value.
Austria-Hungary	108,301	\$13,740
Belgium	534,266	39,472
France	1,000,113	105,172
Germany	1,361,620	135,000
Italy	45,297	5,155
Netherlands	469,530	68,499
Norway	20,654	2,070
United Kingdom (Engl'd)	2,099,263	202,398
United Kingdom (Scotl'd)	52,686	10,237
Canada	1,357,999	141,919
Total, 1910-11	7,049,729	\$723,664
Total, 1909-10	6,143,610	\$578,944
Total, 1908-09	4,071,795	402,897
Total, 1907-08	4,255,789	449,727
Total, 1906-07	4,756,621	548,695
Total, 1905-06	a	339,507
Total, 1904-05	a	204,945

a Not officially reported.

III.—Quantity and Value of Exports, by Customs Districts.

FROM—	Pounds.	Value.
Arostook	3,176	\$136
Baltimore	6,0641	29,109
Bancor	1,657	74
Boston	417,539	16,191
New York	4,411,297	522,068
Philadelphia	240,628	14,280
New Orleans	1,625	97
Buffalo Creek	129,996	10,925
Champlain	137,304	14,797
Chicago	30,194	3,170
Detroit	93,645	9,012
Huron	387,942	35,463
Memphremagog	106,856	16,594
Niagara	328,805	32,067
Oswegatchie	11,500	575
Vermont	126,924	19,106
Total, 1910-11	7,049,729	\$723,664

EXPORTS OF AMERICAN RUBBER GOODS, FISCAL YEAR ENDED JUNE 30, 1911.

EXPORTED TO—	Belting, Packing and Hose.	Boots and Shoes.	Tires For Automobiles.	All Other.	Other Goods.	Total Value.
	Pairs.	Value.	Value.	Value.	Value.	
EUROPE:						
Austria-Hungary	\$8,676	30,845	\$19,376	\$329	\$9,658	\$38,039
Azores and Madeira	29	59	197	821	337	563
Belgium	5,789	112,140	56,808	98	58,853	122,573
Denmark	11,180	45,988	29,991	98	10,039	52,966
Finland	91	437	404	30	677	1,202
France	3,319	159,850	75,885	185,473	118,775	391,987
Germany	40,204	525,810	291,967	29,979	348,283	711,831
Gibraltar	234	252	.....	.....	.....	252
Greece	2,000	1,045	.....	.....	358	1,403
Italy	2,181	124,347	74,856	537	43,792	139,198
Netherlands	7,114	8,442	4,136	.....	255	36,735
Norway	2,156	59,818	33,850	1,295	3,280	40,581
Portugal	11,389	9,529	693	.....	1,119	11,341
Roumania	627	1,512	.....	.....	.....	1,512
Russia in Europe	20	7,069	7,613	655	764	6,052
Spain	752	42,126	25,566	3,547	96	3,299
Sweden	1,579	14,606	11,455	8,335	5,688	8,440
Switzerland	774	121,804	67,229	.....	4,930	72,933
Turkey in Europe	1,064	620,822	302,537	.....	100	303,701
United Kingdom—						
England	182,684	1,104,370	573,072	1,104,416	127,478	1,098,325
Scotland	4,155	140,116	57,013	.....	15,725	76,893
Ireland .....	.....	2,645	1,336	.....	1,042	2,378
Total, Europe	\$271,767	3,135,544	\$1,645,629	\$1,336,178	\$164,036	\$1,769,819
NORTH AMERICA:						
Bermuda	\$863	408	\$281	.....	\$2,954	\$1,406
British Honduras	1,459	12	24	\$15	120	481
Canada	280,004	183,430	114,058	405,778	44,245	1,017,776
Costa Rica	8,508	112	76	951	1,117	7,008
Guatemala	9,843	224	307	1,343	600	3,265
Honduras	6,199	7	44	.....	281	1,412
Nicaragua	6,291	17	50	.....	64	9,164
Panama	100,202	6,513	16,865	5,379	11,761	52,102
Salvador	7,661	4	22	525	650	16,779
Mexico	409,913	2,227	2,160	144,893	48,065	128,226
Miquelon, Langley and St. Pierre Islands	30	2,715	2,099	.....	.....	166
Newfoundland and Labrador	14,968	65,685	45,041	955	1,042	5,732
West Indies—						
British	9,315	1,061	632	14,007	8,130	14,875
Cuba	153,374	5,015	5,493	27,072	112,783	131,596
Danish	451	445	393	.....	.....	677
Dutch	313	62	38	30	74	607
French .....	.....	1	4	.....	401	104
Haiti	1,576	94	57	.....	.....	3,489
Santo Domingo	10,609	170	204	321	3,854	7,175
Total, North America	\$1,021,579	268,202	\$187,848	\$601,269	\$236,141	\$1,402,040
SOUTH AMERICA:						
Argentina	\$28,831	26,131	\$18,047	\$3,541	\$6,517	\$80,524
Bolivia	1,344	72	55	.....	.....	654
Brazil	34,442	45,201	35,548	10,112	7,767	62,596
Chile	34,574	7,125	5,441	262	21,786	10,047
Colombia	9,398	3,267	1,976	2,564	2,737	6,342
Ecuador	7,042	1,595	1,655	392	260	3,888
Guiana—British	701	3,490	1,811	624	1,449	1,395
Dutch	4	.....	.....	.....	20	895
Paraguay .....	.....	1,068	941	557	.....	51
Peru	26,603	117	26,304	586	2,938	8,021
Uruguay	5,659	241	138	130	558	22,868
Venezuela .....	.....	.....	.....	.....	.....	12,327
Total, South America	\$148,715	114,494	\$81,792	\$18,768	\$44,032	\$209,608
Total						\$502,915

RECLAIMED RUBBER.

I.—Quantity and Value of Exports, by Countries.

To	Pounds.	Value.
Belgium	245,014	\$48,830
France	494,255	56,413
Germany	251,690	38,507
Italy	14,645	1,592
Netherlands	2,279	228
Norway	5,057	900
Sweden	13,595	2,550
United Kingdom (Engl'd)	1,001,376	149,046
United Kingdom (Sc'tl'd)	67,681	11,290
Canada	2,600,019	421,713
Japan	286,064	47,227
Australia and Tasmania	12,852	2,354

Total, 1910-11	4,994,527	\$781,650
Total, 1909-10	3,622,556	\$535,795
Total, 1908-09	3,196,551	414,861
Total, 1907-08	2,947,974	418,738
Total, 1906-07	4,550,788	665,109
Total, 1905-06	4,084,696	511,843
Total, 1904-05	a	522,902

a—Not Officially reported.

II.—Quantity and Value of Exports, by Customs Districts.

FROM—	Pounds.	Value.
Baltimore	1,671	\$165
Boston	272,237	44,936
New York	1,028,497	125,538
Philadelphia	982,273	169,036
Puget Sound	11,017	2,200
San Francisco	97,513	17,802
Buffalo Creek	740,996	117,977
Champlain	973,440	148,713
Detroit	4,000	687
Huron	53,951	9,824
Huron	457,738	91,603
Memphremagog	280,249	41,207
Niagara	90,945	11,962
Vermont		

Total, 1910-11 4,994,527 \$781,650

RE-EXPORTS OF IMPORTED INDIA-RUBBER.

By countries (for year ending June 10, 1910):

	Pounds.	Value.
Austria-Hungary	200	\$250
Belgium	184,984	199,816

EXPORTED TO	Belting, Packing and Hose.	Boots and Shoes.		Tires—		Other Goods. Value.	Total Value.
		Pairs.	Value.	For Auto- mobiles. Value.	All Other. Value.		
ASIA:							
French China	\$905						\$905
Chinese Empire	12,372	318	\$620	\$590	\$38	\$4,888	18,508
Japanese China	2,612	24	28				2,640
British India	13,732	336	198	874	479	12,075	27,358
Straits Settlements	733			283	115	1,187	2,318
Other British	30			160		61	251
Dutch East Indies	114			916	1,020	1,805	3,855
Hong Kong	4,610	82	220	997	460	673	6,960
Japan	127,147	56,090	39,351	15,319	12,730	173,354	367,901
Korea	5,484	48	24			359	5,867
Asiatic Russia	6,371	180	421			976	7,768
Siam	528			207	160	1,092	1,987
Turkey in Asia		49,041	28,127			728	28,855
Total, Asia	\$174,638	106,119	\$68,989	\$19,346	\$15,002	\$197,198	\$475,173
OCEANIA:							
Australia and Tasmania ..	\$112,890	291,678	\$161,882	\$3,292	\$4,108	\$136,032	\$418,204
New Zealand	47,619	39,045	39,813	7,078	10,882	65,769	171,161
Other British	137	2,242	946			95	1,178
French Oceania	1,550	5,860	4,707	36	55	1,135	7,483
German Oceania	58	96	85				143
Philippine Islands	106,206	6,403	6,487	90,759	106,821	87,079	397,352
Total, Oceania	\$268,460	345,324	\$213,920	\$101,165	\$121,866	\$290,110	\$995,521
AFRICA:							
British, West	\$16	60	\$43			\$27	\$86
British, South	176,628	13,937	20,876	\$8,310	\$11,230	13,331	230,375
British, East	193						193
French Africa						516	516
Liberia						14	14
Portuguese Africa	100,163			71		3,838	104,072
Turkey in Africa—Egypt ..	1,257	652	333		163	324	2,077
Total, Africa	\$278,257	14,649	\$21,252	\$8,381	\$11,393	\$18,050	\$337,333
Grand Total, 1910-11	\$2,163,416	3,984,332	\$2,219,430	\$2,085,107	\$592,470	\$3,886,825	\$10,947,248
Grand Total, 1909-10	\$1,960,825	3,791,084	\$1,984,739			\$5,115,331	\$9,060,895
Grand Total, 1908-09	1,498,445	2,396,435	1,292,673			3,823,956	6,615,074
Grand Total, 1907-08	1,347,775	3,080,253	1,614,290			3,743,040	6,705,103
Grand Total, 1906-07	1,253,369	2,310,420	1,231,898			3,729,643	6,214,910
Grand Total, 1905-06	1,221,159	2,693,690	1,505,082			2,966,144	5,692,385
Grand Total, 1904-05	994,100	2,390,539	1,214,342			2,572,375	4,780,817
Grand Total, 1903-04	880,010	2,310,808	1,086,364			2,469,750	4,436,124
Grand Total, 1902-03	819,985	2,307,401	1,056,491			2,299,875	4,176,351
Grand Total, 1901-02	634,146	2,594,708	1,046,315			1,781,941	3,462,402
Grand Total, 1900-01	565,726	1,459,100	724,015			1,727,527	3,017,268
Tires were not specifically reported before 1910-11.							

France	178,149	322,797	Australia	9,067	8,369
Germany	453,955	292,784	Total, 1909-10	6,492,947	\$7,629,380
Netherlands	2,397	2,115			
Russia in Europe	58,445	52,232	Total, 1910-11 (a)	5,267,588	\$5,439,282
United Kingdom—England	2,169,370	3,291,394	Total, 1908-09	3,791,971	2,964,496
Scotland	4,308	3,900	Total, 1907-08	4,110,667	2,994,208
Canada	3,382,153	3,376,506	Total, 1906-07	4,215,350	3,593,912
Mexico	250	55			
Japan	49,669	79,162	(a) Details not yet published.		

SUMMARY.

	1909-10.		1910-11.	
	Pounds.	Value.	Pounds.	Value.
IMPORTS OF FOREIGN MERCHANDISE—				
Crude India-Rubber	101,044,681	\$101,078,825	72,046,260	\$76,244,603
Guayule gum (included with India-Rubber, 1910)			19,749,522	10,443,157
Gutta-Percha	784,501	167,873	1,648,921	390,548
Gutta-Jelutong (Pontianak)	52,392,444	2,419,223	51,420,872	2,872,633
Balata	399,003	196,878	878,305	624,702
Scrap	37,364,671	2,998,697	26,948,000	2,334,870
Total unmanufactured imports (a)	191,985,300	\$106,861,496	172,691,880	\$92,910,513
Manufactures of India-Rubber		\$1,154,347		\$875,125
Manufactures of Gutta-Percha		80,567		61,283
Total manufactured imports (b)		\$1,234,914		\$936,408
RE-EXPORTS OF FOREIGN MERCHANDISE—				
Crude India-Rubber	6,492,947	\$7,629,380	5,267,588	\$5,439,282
Balata	73,553	42,750	264,589	230,575
Guayule gum (included with India-Rubber, 1910)			340,405	175,995
Gutta-Percha	74,137	13,886	62,391	19,235
Gutta-Jelutong (Pontianak)	2,139	112		
Scrap	61,395	5,373	401,231	43,338
Unmanufactured re-exports (c)	6,704,171	\$7,691,501	6,336,204	\$5,908,425
Manufactures of India-Rubber		\$13,568		\$29,356
Manufactures of Gutta-Percha		13,955		8,687
Manufactured re-exports (d)		\$27,523		\$38,043
EXPORTS (DOMESTIC MERCHANDISE)—				
Scrap	6,143,610	\$578,944	7,049,739	\$723,664
Reclaimed rubber	3,622,556	535,795	4,994,527	781,650
Manufactures of India-Rubber and Gutta-Percha		9,060,895		10,947,248
Total domestic exports (e)		\$10,175,634		\$12,452,562
GRAND TOTALS—				
Imports (a) and (b)		\$108,096,410		\$93,846,921
Less re-exports (c) and (d)		7,719,024		5,946,468
Consumption of foreign imports		\$100,377,386		\$87,900,453
Exports of domestic merchandise (e)		\$10,175,634		\$12,452,562

THE RUBBER TRADE AT AKRON.

(By a Resident Correspondent.)

The Swinehart salesmen held their annual conference at Akron the week of September 29. Plans for the ensuing year were discussed; also the exploitation of their new cellular anti-skid truck tire. Over forty salesmen and agents were in attendance.

The Republic Rubber Company, Youngstown, O., on account of an increase in business, is building new factory buildings and is making additions to the present plant, for which purpose it has decided to increase its capital stock by an addition of \$1,000,000 of preferred stock.

The B. F. Goodrich Rubber Co. has issued its route book for Southern California, Los Angeles and San Diego. It is the first of a series of eight books, which will include all the routes now being marked by the Goodrich road markers on the

of its size in the country from the tourists' point of view. It includes all the old landmarks and points of interest in this section, and is made especially for tourists' use.

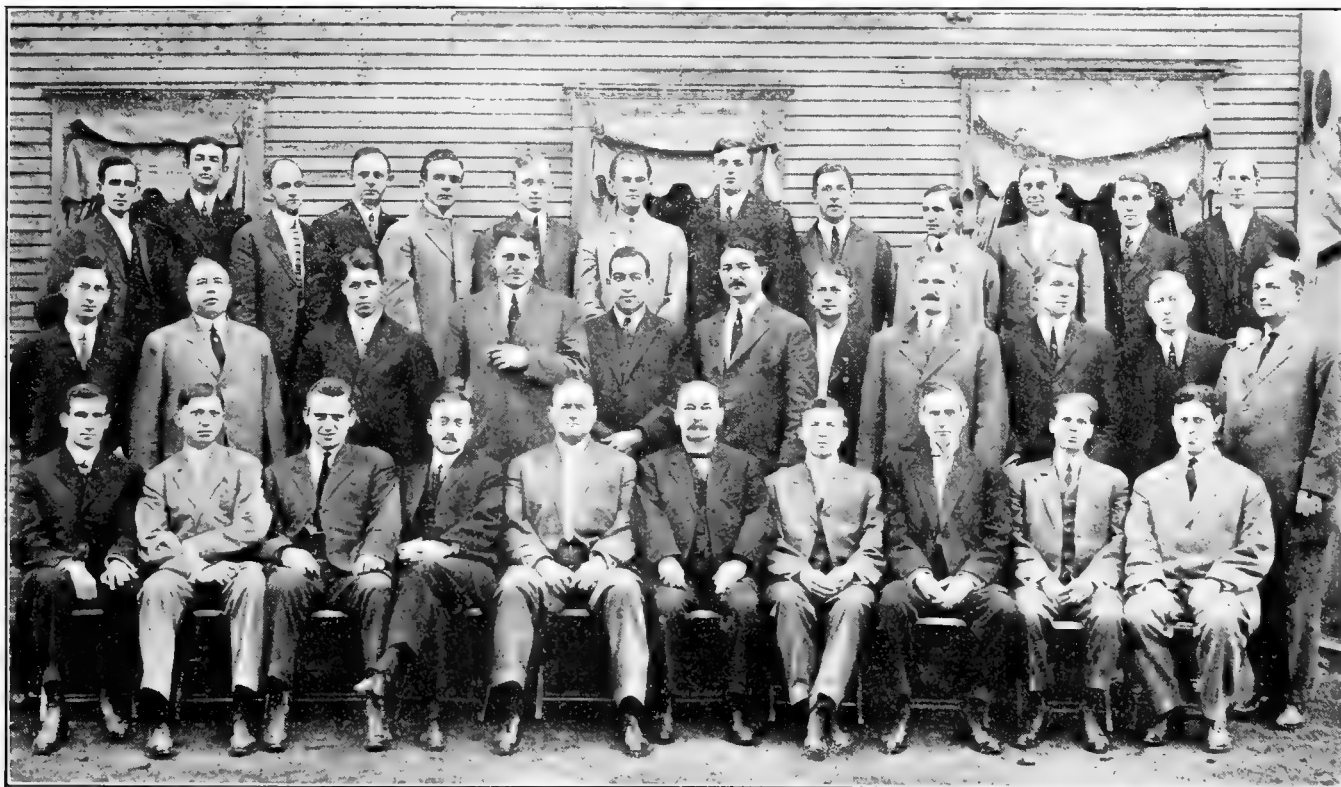
The other books will follow the Pacific routes from there further North and extend into Canada.

The Goodrich Company is certainly to be encouraged and thanked for the benefit it is conferring on the public by this advertising venture.

Irvin Renner, department foreman of The B. F. Goodrich Company, has left for Colombes, France, to install tire machinery and to organize a tire department of that company at that place.

A. G. Partridge has been appointed assistant sales manager of The Firestone Tire and Rubber Co.

This company's rim plant, on account of the construction of the new building, has been given more space and is well equipped



SALESMEN OF SWINEHART TIRE AND RUBBER CO.

Top row from left to right.—A. T. Borden, Charles Parker, E. F. Gardner, J. F. Lemmon, G. L. Moore, F. Grant, E. Flagg, C. A. Swinehart, J. G. Boss, W. G. Boyle, W. J. Kreuder, H. L. Houk, G. A. Dodge.
Second row.—M. J. O'Connor, B. F. Hadley, L. J. Brainard, A. G. Partridge, C. O. Dail, L. J. Long, M. Grey, F. H. Pierce, G. E. Grimes, J. E. Keuhlborn, A. T. Carnahan.
Third row.—F. D. Wait, E. O. Hoopengartner, J. J. Tompkins, A. J. Greene, W. W. Wuchlter (president), R. A. May (treasurer), C. O. Baughman (secretary), C. W. Harris, S. G. Andrews, F. H. Burgher.

Pacific Coast. The general plan of the book will differ from that of the previous books in that, instead of having one large map which is inconvenient while touring, it will be provided with sectional maps. The map of each section is on a separate page with different route descriptions opposite. It has an index map which gives a general view of all the territory included in the book, and enables one to locate quickly the particular route map he wishes to select. In addition, city maps are furnished whenever needed. The book contains a number of valuable tire pointers, including a digest of the motor vehicle laws of the Western States.

The territory covered by this first book is from the Mexican border to Los Angeles, perhaps the most interesting district

with electric welding, shaping, rolling, galvanizing and plating machinery.

On account of the increased use of the Firestone demountable rims, which possess a quick detachable feature, the manufacture of the quick detachable rims has been discontinued.

Henry McCreary, of Indiana, Pennsylvania, is erecting a new rubber factory at Wooster, O. The main building is brick, 172 by 48 feet, two stories high. The boiler room is separate.

F. T. Lahey, representing Poel & Arnold, of New York, crude rubber merchants, has opened an office in the Second National building.

THE RUBBER TRADE IN BOSTON.

(By a Resident Correspondent)

AN event of more than ordinary interest to the members of the rubber trade was the dedication, on November 5, of the Forsyth Memorials at St. James Church. These memorials, which are the gifts of John H. Forsyth and Thomas A. Forsyth, comprise a baptistery and marble font, with its bronze cover and silver ewer, and two beautiful stained glass windows, these being in memory of Margaret Bennett Forsyth, James Bennett Forsyth and George Henry Forsyth. (These memorials are described in detail and illustrated on another page.) The services were conducted by the rector, Rev. Dr. Murray W. Dewart, assisted by the Rev. Dr. Daniel D. Addison, rector of All Saints' Church, of Brookline. The music was by the boy choir of the church and a quartette. The dedicatory address was by the Right Reverend William Lawrence, S. T. D., Bishop of Massachusetts, who spoke eloquently of the many charities of the members of the family, and told of the virtues and nobility of the deceased. The church was filled during the exercises, there being many present who were intimate with the Messrs. Forsyth in former days, and who came to do honor to the deceased. After the services many waited to take a closer view of the handsome memorials, which all pronounced a fitting tribute to those they memorialized.

* * *

The annual conference of the agents of the Boston Belting Co. was held at the home office of the company in Boston, November 15 and 16. The conference this year was attended by the agents of the company from eastern and western states, and a series of instructive and enjoyable business sessions was held. Opinions were expressed by many of those participating that the conference this year was a greater success than any of its predecessors.

The affair was brought to a successful close on Thursday evening, November 16, when a dinner was tendered by the Boston Belting Co. to its guests at the Boston Athletic Association. The occasion was entirely informal, remarks being made by many of those present at the table, not the least enjoyable feature being the topical songs, which were, of course, apropos of some of the gentlemen present.

* * *

A. H. Alden arrived in New York on Thursday, November 16, from a trip abroad. George E. Alden and Arthur W. Stedman went over from Boston to welcome him.

* * *

Francis H. Appleton, who, it will be remembered, was one of the three officers of the Ancient and Honorable Artillery Company, of Boston, appointed to present a testimonial from that body to His Majesty, King George of England, has in his office an interesting souvenir of his visit, a framed photographic facsimile of the document. Mr. Appleton was one of the large number of members of this organization who took a trip to Bermuda early this fall, where they were splendidly entertained by the military organizations on that island.

* * *

Three little clocks, each with a face about two inches in diameter, tick synchronously on the desk of R. L. Chipman in the office of the Geo. A. Alden Co. in this city. One marks London time, another shows the hour in Singapore, and the third tells the time of day in Pará. These serve their purpose in determining the time of arrival at those important rubber centers of cable messages sent from this office. Mr. Chipman uses his pocket timepiece for local business engagements and going to lunch, though the Singapore clock comes near enough to Boston time, being practically twelve hours later.

W. M. Farwell, of the Acme Rubber Co., tired of the narrow life of a city apartment dweller, has long pined for the broader role of a gentleman farmer. He has just purchased a fine country place at Wellesley Hills and fitted it up with the very latest improvements and will "move in" (or move out) some time about the first of this month.

* * *

The Post & Lester Co., distributors of the Pennsylvania tires and dealers in motor supplies, have moved from Devonshire street to the Pope Building on Columbus avenue and are occupying the premises formerly leased by the Diamond Rubber Co.

* * *

The Empire Rubber Manufacturing Co. and the Empire Tire Co. removed from their former location the first of December to 119 and 121 Summer street, where they have secured much larger quarters, nearly double the space now occupied by them on Devonshire street. Manager Winslow H. Chadwick was away on a business trip most of last month, returning to Boston on Saturdays. F. G. Burgess, representative of the Hodgman Rubber Co., who has had an office with Mr. Chadwick, has also moved to the new location on Summer street.

* * *

The weather in nearly every section of the country has been unusually favorable for a large trade in rubber and other waterproof garments, and every manufacturer of these lines visited by your correspondent reports an excellent demand. The Apsley Rubber Co. is rushed with orders, as is also the American Rubber Co. N. Lincoln Greene, manager of the clothing department of the latter company, started on an extended business trip on the 18th ult. He reports a greatly increased demand for the finer lines in these goods, which are now being made in natty styles from fine fabrics.

* * *

And speaking of waterproof garments, your correspondent happened in the store of C. J. Bailey & Co. shortly after noon on the day of the Harvard-Dartmouth football game. Busy? Well, yes. The day was stormy and the rain sufficient to dampen the ardor of any but a football crowd, and the way the Bailey sales force was hustling was an object-lesson in business energy. It was a regular procession of try-on, how-much? here's-your-money, thanks-good-bye, for a couple of hours as men and women bought something to protect them from the rain. And the humor of it was that not a drop of rain fell after the game commenced. But Bailey sold the goods.

* * *

Colonel Frank L. Locke, who is known to a very large number of the rubber trade from his former position as superintendent of the factories of the Boston Rubber Shoe Company, is proving the right man in the right place as president of the Young Men's Christian Union in this city. Assuming this important position about four years ago, he has worked earnestly and indefatigably for broadening the field of usefulness of that grand institution. His administration has shown a marked increase in the active membership and a most practical appreciation of the improved services rendered to young men in various channels. The advantages, physical, mental, moral and commercial, which this institution is furnishing young men have been greatly increased by Colonel Locke, who is having the hearty support of many leading citizens in this important work.

The Okonite Co., 253 Broadway, New York City, has published a convenient little booklet entitled "Economy in Joint Making, With Instructions," which contains seasonable information in regard to making repairs in the way of insulating and protecting joints so that short circuits, with their accompanying troubles, may be avoided.

THE RUBBER TRADE IN RHODE ISLAND.

(By a Resident Correspondent.)

IN striking contrast with the cotton mills by which it is surrounded, the Providence plant of the United States Tire Co. is being enlarged constantly, and the force of employes is being increased. The principal product of the concern is the Continental tire.

This company began operations in the old plant of the Banigan Rubber Co. on Valley street last July, and since that time it has enlarged a number of the buildings, erected storehouses and improved the property generally. The number of employes has been increased from 150 to 950, and more are being engaged at present. Full shifts are kept at work night and day.

* * *

At the wire insulating mill within the enclosure of the National India Rubber Co.'s plant at Bristol, Rhode Island, a new system of conveying power to buildings connected with the wire department, where there was previously no power, has been introduced.

The work was completed during the early part of the week ending November 11 by Contractor W. G. Murphy, of Warren. Framework supports on concrete foundations convey the power by means of ropes, this method having been found superior to belts. This apparatus provides power in buildings where more machinery can be installed without adding to the electrical equipment of the concern.

* * *

The Consumers' Rubber Company has recently shipped a large number of cases of footwear from its factory in Bristol to Tacoma, Washington, and vicinity.

* * *

Lack of orders recently has caused the International Rubber Co., makers of rubber fabrics, to put its plant at West Barrington on a four-day-a-week schedule.

* * *

Employes of the Woonsocket Rubber Co., a subsidiary of the United States Rubber Co., at Woonsocket, in common with operatives in other manufacturing plants in that city, have been undergoing wholesale vaccination during the past two weeks, as a result of a smallpox epidemic in the Pawtuxet Valley, where nearly 150 cases have developed. The French Canadians of the two localities visit each other so constantly that Woonsocket officials have feared the recurrence of an epidemic that greatly affected business there in 1900-'01-'02.

THE RUBBER TRADE IN SAN FRANCISCO.

(By a Resident Correspondent.)

ALREADY the merchants are taking notice that the Panama Exposition will bring about an increased activity. The inquiries which have emanated from headquarters indicate that the matter of fire protection for the entire city, as well as the fair grounds, will be one of the first matters looked into, and the merchants with fire hose to sell will be in line for an early improvement in this class of business. But the opening of the Panama Canal and the activity preceding the opening of the exposition are bound to work great and beneficial results. Business at present is normal, with considerable room for improvement in every line, saving, perhaps, that of tires, which continues to keep up a very high degree of activity.

* * *

E. R. Metcalf, of the Rubber and Asbestos Packing Co., Denver, Colorado, died on October 19.

* * *

W. D. Rigdon has been appointed manager for the San Francisco store of the Gorham-Revere Rubber Co. J. B. Brady, the general sales manager of this company, is now out visiting the

branches throughout the North. W. H. Gilbert, the treasurer, is also out making a trip to the various branches, and will then make a trip East.

* * *

A. F. Solbery, representing the United States Rubber Co., has been on a visit to the coast, and after taking in the principal cities has returned to his offices in Chicago.

* * *

The Gutta Percha and Rubber Manufacturing Co. reports that business is moving along with fair satisfaction, and that the outlook is a little better than usual.

* * *

Mr. Miller, of The B. F. Goodrich Co., reports that business is much better just now in the tire line than in the mechanical department, but that trade is showing up better all around, and that they expect a very good business in the mechanical department beginning with the first of the year.

* * *

J. A. Jones, who has been salesman at the Second and Mission street headquarters of The Diamond Rubber Co. for two years, has been appointed branch manager of this company's retail store at Golden Gate and Van Ness avenues. He succeeds Harry Ingersoll, who resigned to take the position of sales manager with the Keaton Vulcanizing Co.

* * *

R. H. Pease reports for the Goodyear Rubber Co. that last month and the first of this showed a favorable business. All of the rains so far have been in the night time, which has not served to boost rubber clothing much. Otherwise business is running along naturally, with a good increase over last year, which is not saying much, however, as it was very dull at this time in 1910. The new calender, mill and tubing machines have been installed in the factory, and this has necessitated the doubling of the floor space.

* * *

James F. Giles, of the American Hard Rubber Co., is now making his annual visit to the Pacific Coast, and stopping while here with the Goodyear Rubber Co.

* * *

W. G. Chanslor, of the Chanslor & Lyon Motor Supply Co., whose home is in Los Angeles, spent a few days in San Francisco on his return from a hunting trip by automobile in the northern part of the State, accompanied by his wife and some friends.

* * *

R. H. Keaton, manager of the Keaton Vulcanizing Works, has left for Akron, where he is having a special non-skid tread placed upon the Swinchart tires, which he represents on the coast.

* * *

The Weinstock-Nichols Co., dealers in tire and auto supplies, have leased for ten years for \$65,000 a three-story building, to be erected on the north side of Golden Gate avenue, west of Polk street.

* * *

Charles W. Crockett, manager of the Edson & Crockett Tire Co., 124 Hyde street, was seriously injured by an accident, which occurred near Hillsborough. While riding a motorcycle he was struck by a wagon, thrown from the motorcycle and rendered unconscious. He was picked up by a passing automobile and carried to the Red Cross Hospital at San Mateo, being later brought to his home in this city. His condition is very serious.

* * *

J. D. Anderson, general sales manager of the United States Tire Co., is making a tour of inspection of all the Western branches. He was met in Salt Lake by J. C. Weston, of San Francisco, the coast manager. They are taking in the entire coast—Seattle, Portland and the other leading cities of the Northwest, thence

San Francisco and Los Angeles, and other California cities. Mr. Anderson was formerly president of the Hartford Rubber Works Co. This is his first trip West since taking up his present position with the United States Tire Co. The firm's many branches on the coast are all doing well. The new store in San Francisco, now being erected at Golden Gate and Van Ness avenues, and soon to be ready for occupancy, will be one of the finest of all.

* * *

The W. D. Newerf Rubber Co. has secured the agency for the Miller tires, manufactured by the Miller Rubber Co., of Akron, Ohio.

* * *

The Batavia tire, made by the Batavia Rubber Co., of Batavia, New York, is now represented on the coast for the first time by F. W. Burgers, of San Francisco, who has just returned from a six weeks' visit to the tire factories in the East. Mr. Burgers has been identified with a number of local rubber houses and has only recently decided to go into business for himself. He has opened a store at 409 Golden Gate avenue.

* * *

The Michelin Tire Co. has established wholesale quarters in Los Angeles at 749 South San Pedro street. It has no retail branch there and in this respect has made a decided innovation. J. M. Cummings, the Pacific coast manager, explains this method as being the way the business will be handled in the future by all tire manufacturers, and they are only anticipating conditions. He says that tires are simply accessories to automobiles and the proper method of distribution is through the automobile and accessory houses. All that a tire factory needs to establish is a jobbing branch. The new establishment will be managed by J. R. Wells, who comes from the San Francisco branch. I. H. Saddler, from the Seattle branch, has taken the position left vacant by Mr. Wells, and E. J. Hawke has been sent from San Francisco to take the management in Seattle.

UNITED STATES RUBBER CO.'S ISSUES.

Transactions on the New York Stock Exchange for five weeks, ending November 25:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend, October 31, 1911—1%.

Week November 4	Sales 11,700 shares	High 44 $\frac{5}{8}$	Low 42
Week November 11	Sales 16,395 shares	High 46 $\frac{5}{8}$	Low 44 $\frac{1}{2}$
Week November 18	Sales 17,020 shares	High 47 $\frac{3}{4}$	Low 46 $\frac{1}{4}$
Week November 25	Sales 4,600 shares	High 47 $\frac{5}{8}$	Low 46 $\frac{7}{8}$

For the year—High, 47%, March 1; Low, 30%, September 25.
Last year—High, 52 $\frac{1}{2}$; Low, 27.

FIRST PREFERRED STOCK, \$39,824,400

Last Dividend, October 31, 1911—2%.

Week November 4	Sales 900 shares	High 107	Low 106
Week November 11	Sales 1,200 shares	High 109	Low 107 $\frac{1}{4}$
Week November 18	Sales 700 shares	High 110	Low 109
Week November 25	Sales 685 shares	High 109 $\frac{1}{2}$	Low 108 $\frac{7}{8}$

For the year—High, 115 $\frac{1}{2}$, July 7; Low, 104, September 25.
Last year—High, 116 $\frac{1}{4}$; Low, 99.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, October 31, 1911—1 $\frac{1}{2}$ %.

Week November 4	Sales 300 shares	High 73	Low 72
Week November 11	Sales 1,200 shares	High 76	Low 74
Week November 18	Sales 1,000 shares	High 76 $\frac{1}{2}$	Low 75 $\frac{3}{4}$
Week November 25	Sales 200 shares	High 75	Low 75

For the year—High, 79, March 1; Low, 66, September 26.
Last year—High, 84; Low, 59 $\frac{1}{2}$.

SIX PER CENT. TRUST GOLD BONDS, \$19,000,000.

Outstanding of the 1908 issue of \$20,000,000.

Week November 4	Sales 41 bonds	High 103 $\frac{3}{4}$	Low 103 $\frac{3}{8}$
Week November 11	Sales 36 bonds	High 104	Low 103 $\frac{7}{8}$
Week November 18	Sales 32 bonds	High 104	Low 103 $\frac{7}{8}$
Week November 25	Sales 29 bonds	High 104	Low 103 $\frac{5}{8}$

For the year—High, 105, July 15; Low, 101 $\frac{3}{4}$, September 30.
Last year—High, 106; Low, 102 $\frac{1}{4}$.

A REMARKABLE FLOW OF LATEX IN BOSTON.

THE Chinese rubber tree, in the Arnold Arboretum, in Jamaica Plain, a suburb of Boston, has excited considerable comment, but the discussion to which it has given rise does not compare with that occasioned by the extraordinary rubber tree which was displayed in the Hood rubber exhibit at the Educational and Industrial Exposition recently held in that city.

Hitherto, it has been considered necessary to take a trip of at least 2,500 miles down to Pará and up the Amazon in order to see the *Hevea Brasiliensis* giving forth its valuable contents, but here was a specimen of *Hevea* right in the heart of Boston, giving out a fine, full, free flow of latex several times a day.

The tree was visited by a large number of people. A painstaking mathematician, after some very careful calculations, concluded that, at the rate of this daily flow, the tree ought to produce about two tons of the finest Pará annually. The tapping was done by the familiar half herring-bone system, and the



"ELASTIC HOODENSIS."

advocates of this system found very much to corroborate them in their belief in the generous results attained in this particular instance.

This remarkable rubber tree was particularly interesting to the botanists, for while in many of its aspects it appeared to belong to the *Hevea Brasiliensis* family, there were some marked differences. It was finally determined that it was an entirely new species, namely, the *Hoodensis Elastica*.

The accompanying illustration shows a small section of the tree—from the ground to a distance of five or six feet—which gives a fair conception of its appearance, but conveys very little idea of the great amount of attention it received.

Mention was made in our November issue of a guessing contest carried on at the display of the Hood Rubber Co. at the New England Industrial and Educational Exposition in Boston. A half biscuit of rubber was displayed and visitors were invited to guess its weight. There were 18,000 guesses recorded. The weight was 67 pounds 9 $\frac{3}{4}$ ounces. Six of the guesses came within a quarter of an ounce, with 67 pounds 10 ounces, and four came within three-quarters of an ounce, with 67 pounds 9 ounces. These ten fortunate guessers were rewarded by presents of footwear made by the company.

WIDE INTEREST IN THE 1912 RUBBER EXPOSITION.

THE announcement that a rubber exposition will be held in New York in the fall of the coming year has created with profound interest not only in rubber circles in this country, but also abroad and in the rubber planting countries. The work of organization has proceeded very rapidly, and the large number of leading rubber men who have already signified their desire to be actively identified with this exposition gives every assurance of its success.

It will greatly interest the readers of this paper to know that Sir Henry A. Blake, G.C.M.G., who acted as president of the highly successful exposition held in London last June and July, has consented to act as president of the European section of the New York exposition. In addition to this acceptance on the part of Sir Henry Blake, which is in itself an augury of the prominent part that Europe will take in this exposition, at least 70 of the leading rubber men of England, the Continent and the East have accepted positions on important committees. This number includes prominent officers in plantation companies, financiers connected with the rubber industry, experts and scientists identified with the development and progress of rubber culture, manufactures, and the editors of practically all the rubber publications in Europe and in the Middle East.

The response in this country has been no less enthusiastic, and from the present returns it is safe to say that practically all the leading rubber men of America will have some part in this international exhibit. The exposition will be under the auspices



GRAND CENTRAL PALACE—VIEW OF EXHIBITION HALL.



GRAND CENTRAL PALACE—VIEW FROM LOBBY OF GRAND STAIRCASE.

of the International Exposition Co., Inc., of New York, whose directors are: Samuel A. Miles, manager National Association Automobile Manufacturers; Richard G. Hollaman, president Eden Musee, American Co.; James C. Young, secretary and treasurer Madison Square Garden; Edward P. B. Ritter, president Merchants' and Manufacturers' Exchange of New York; Charles E. Spratt, vice-president Merchants' and Manufacturers' Exchange of New York; and J. A. H. Dressel, managing director Madison Square Garden.

The two accompanying illustrations show interior views of the Grand Central Palace, New York City, where the exposition is to be held. It is called the finest exposition building in the world.

Recent visitors to the United States were Dr. Paul Stockhardt and the head engineer, Mr. A. Davids, of the Hannoversche Gummi-kamm Company, of Hannover, Germany. Both of the gentlemen expressed themselves as very much pleased with the courteous treatment they received from the American rubber factories, which they visited during their brief stay.

The Forsyth Memorials in St. James Church, Roxbury, Mass.

ON Sunday, the fifth of November, Bishop Lawrence dedicated a striking group of memorials, which form another record of the generosity of Messrs. John H. and Thomas A. Forsyth. These comprise a baptistery and marble font (with its bronze cover) and two stained glass windows; all in memory



ROSE WINDOW REPRESENTING ST. MARGARET.

of Margaret Bennett Forsyth, James Bennett Forsyth and George Henry Forsyth.

Of the two windows, the smaller, in the baptistery, represents St. Margaret of Scotland holding the "Black Rood" or Cross, and gathering under her mantle an old man and two children in commemoration of her notable charity, and in recognition of the same quality in Mr. Forsyth's sister, who bore the name of this Patron Saint of Scotland. On either side are the Scottish arms and those of the family of Forsyth, and in the background is a scroll, with the inscription, "Sancta Margarita Regina Scotiae." The window is on the lines of the XIIIth century glass of France, and is extraordinarily rich in color. The second window is in three lights, with rich stone tracery above. It shows in the center the figure of St. John the Evangelist as a young man, with the text below, "I heard a voice from Heaven." On one side is a symbolical figure of Mercy; on the other a figure of Peace. The orders given the makers were that this window should be the most perfect example of stained glass that could possibly be produced, and the result is one of the most beautiful windows in the city of Boston.

The baptistery is perhaps the most striking of the memorials. Two great cylindrical columns support a richly moulded Gothic arch; the floor is raised three steps above the floor of the church, the steps themselves being of limestone, the paving of Grueby tiles of rich and harmonious color. The font, which stands on a series of steps modeled after a famous example in England made of rose-colored Tennessee marble, is perhaps the most delicate and beautiful example of stone carving ever produced in America. The font itself is of pure white statuary marble, very rich in design, and carved into the most delicate

lacework. It bears on its stalk six coats of arms wrought with the delicacy of an Italian cameo. These arms are those of the United States, England, Scotland, France, and the families of Bennett and Forsyth. The canopy is entirely of golden bronze and consists of a cover wreathed with intricately-wrought vine leaves, and supporting a statue of St. John the Baptist as a child. This canopy was the work of the famous English artist, Mr. Henry Wilson, and is the first example of his art that has been brought to America and put in a public position. He is looked upon in England as one of the greatest art workers of the day. He was trained under the late John D. Sedding and occupies an unique position in the world of English and Continental art.

The walls of the baptistery are panelled in oak of rich and decorative design, and behind the font are two bronze lanterns.

All the memorials mentioned above are executed from the designs and under the direction of Cram, Goodhue & Ferguson, architects, of Boston and New York.



THREE-PANEL WINDOW WITH ST. JOHN IN CENTER.

Accompanying the font is a very handsome silver ewer, especially designed and made by the Gorham Company, Providence, Rhode Island.

TWO RECENT LONDON EXHIBITIONS.

THE LONDON SHOE SHOW.

THE Seventeenth Annual Shoe and Leather Exposition, that was held in the Royal Agricultural Hall in London during the week ending November 4, was an interesting one from a rubber standpoint. There were some twenty exhibitors of rubber goods, among them two American concerns—the United States Rubber Co. and the Hood Rubber Co.

The United States Rubber Co. had a very attractive exhibit in the center of the hall, in which they showed samples of "Boston" and "Bay State" rubber boots and shoes and also some tan styles in sandals and croquets, and quite a full line of yachting and tennis shoes.

The Hood Rubber Co. also had a complete line of its goods on exhibition, including boots, sandals and footholds, and its new "Convertible" overshoe, which is an interesting specimen of footwear, inasmuch as it is a sandal which, when the heel is worn off, can be readily converted into a foothold by cutting off the heel with a pair of ordinary scissors along a line indicated on the shoe. This company also displayed an assortment of tennis and gymnasium shoes.

Among the English exhibitors the North British Rubber Co., Limited, had a very large exhibit, showing a complete assortment of its footwear and also its instep pads, rubber shoe soles and revolving and stationary heel pads.

A striking feature of the rubber department of the exhibition was the large number of different heel pads exhibited. There were no particular novelties in these heels except in certain methods of attachment. There were 110 different styles of heels, including revolving and stationary, shown by the different exhibitors. To an American the low prices at which some of these rubber heels are sold seems almost incredible, some being made to sell to the retailer and shoe repairer at four cents, and even in some cases as low as two cents a pair, for which they charge, affixed to the shoe, twelve cents a pair. This exhibition, however, showed a growing tendency on the part of the manufacturer to make a better grade heel that could be sold to the trade at twelve cents a pair, and would cost the consumer twenty-five cents when attached to the shoe.

THE LONDON MOTOR SHOW.

THE Tenth Annual International Motor Exhibition was held in Olympia, London, during the eight days from November 3 to November 11. This was probably the best exhibit of tires and other rubber accessories of motoring ever held in that city. The main floor was given over to the display of cars, and the tire and general accessories exhibit was held in the gallery. There were many English exhibitors and a few from other countries, among them The B. F. Goodrich Co., of Akron, Ohio, which had an excellent display of their all-rubber non-skid tires, and also of their metallic studded non-skid tires.

Among the striking English displays were those of the North British Rubber Co., Limited, which showed five different varieties of the famous Clincher tire; and the Dunlop Rubber Co., Limited, which presented a comprehensive assortment of automobile garments, gloves, leggings, caps, goggles and other articles used in motoring. The Continental Tyre and Rubber Co., Limited, gave an excellent exhibit of tires, some with steel non-skid treads.

In addition to tire displays, there was an extensive exhibit of repair equipments, patent patches, jackets, and other incidentals to tire use.

The exhibition on the whole was a marked success.

An American consul reports that he has received an inquiry for the name of an American dealer in rubber boots and shoes having a European representative, through whom these goods can be secured. The number of the request is 7,636.



MARBLE FONT WITH BRONZE COVER.

It should be said that the donors have shown the keenest and most intelligent interest in every portion of the work, supervising all the designs, criticising them from time to time, and following the executing of the work during its various stages.



BAPTISTERY FONT.

London and Liverpool Auctions and Contracts.

JUST how rubber is auctioned in London or Liverpool is often asked even by those who purchase largely in those markets.

When the writer visited the Liverpool auction rooms that city was the greatest rubber market in the world. That, however, was before the day of plantation rubber, and since then many other great markets have been created.

The auctions occurred on Wednesdays in a public salesroom in the Exchange. After advertising in the daily papers and sending printed lists to rubber merchants, the firms having rubber to sell are ready to show samples in the warehouses or to furnish descriptions of the lots offered. Half a hundred perhaps gather at the auction. The auctioneers for the various sellers read a description of the lot, then pause for bids. Sometimes there is much interest and quick bidding; at others it is as quiet as a Quaker meeting, with lots only partly sold and many bids rejected. The London auctions at Mincing Lane occurred, I believe, on Fridays and were similar to those at Liverpool.

The London and Liverpool form of contract dates back to April, 1901—that is, for Pará, Peruvian and Bolivian rubber. At that time it was adopted by all of the leading houses. The terms are as follows:

CONTRACTS.

No. 1.—When a parcel is sold for a specified shipment, or for shipment by a specified steamer, with a guarantee of quality—other than Fine or Entrefine rubber—and found inferior, buyers must accept same with an allowance, provided such allowance in the opinion of the arbitrators be not more than 3 per cent. of the contract price; but should the parcel be rejected, the seller to have the option of substituting guaranteed quality on the spot to fulfil his contract within three days, otherwise Clause 6 to apply; but in the case of contracts made for delivery during a specified month, or months, should any portion tendered prove inferior to guarantee, buyers shall have the option of rejection, and the portion so rejected shall not constitute a delivery on the contract.

TENDERS.

No. 2.—The first buyer must receive any tender not later than 3 o'clock p. m. (Saturday, 12 o'clock noon), and subsequent tenders must be received by the respective buyers not later than 4 o'clock p. m. (Saturdays, 1 o'clock p. m.).

Should a telegraphic tender be received by a buyer after the times above named, provided there has been no undue delay in despatch, tender shall date from the following day, but weighing over shall take place as from the original tender date. All tenders must be passed on with due despatch.

No. 3.—For a tender to be good, the original seller must be in a position to allow inspection the same day should buyer so require; and seller must furnish, on application, delivery order to buyer without undue delay, and not later than 12 o'clock noon of the day following the date of tender, provided the latter duly complies with the conditions of payment.

A delivery order to be valid must be a clear title to the goods. The onus of proving that it is not valid to rest with the buyer.

No. 4.—When a parcel is tendered, an inspecting order with original seller's name and reference number must accompany the tender, and such particulars must be inserted in each successive tender.

No. 5.—On contracts of five tons and upwards, buyers have the option of refusing tenders of less than one ton, except in completion of contract.

No. 6.—Whenever it may be admitted by the seller, or decided by arbitration, that the seller has failed to declare or tender goods to fulfil any contract, the buyer may close the contract

and at his option invoice back the produce to the seller at once, at a price and weight to be fixed by arbitration (which price shall not be less than $\frac{1}{2}$ per cent. nor more than 10 per cent. over the estimated market value of the shipment or delivery contracted for on the day upon which the default occurs), the difference to be due in cash in fourteen days from such default. Should any parcel tendered after the 24th day of the last month of delivery be rejected, sellers may claim one week from date of such rejection to replace same, but this concession shall not apply to any parcel which, in the opinion of the arbitrators, is not a *bona fide* tender within the terms of the contract.

No. 7.—In the event of a tender of fine rubber being found on inspection to contain an admixture of entrefine, the sellers shall not be required to re-tender same after selection unless such admixture be 5 per cent. or over.

INSPECTION.

No. 8.—Buyers may, in case of need, demand that sellers open 20 per cent. of the number of cases in a parcel sold or tendered, and sellers shall guarantee the portion shown to be a fair average of the bulk, but no claim as to quality or "condition" shall be made after the goods have been weighed over to buyers, except in the case of false packing.

No. 8a.—The cases or packages shown to buyer at time of inspection shall be marked and retained intact by the seller until completion of delivery of the lot or lots of which they form part.

In the event of arbitration the seller must produce for the arbitrators the actual cases shown to the buyers at the inspection.

No. 9.—A seller shall at the request of a buyer grant a *second inspection*, but shall have the right to tare and weigh over at the same time the cases opened for such inspection.

No. 10.—In all cases when an *Order for Inspection* is given, seller must insert sufficient particulars to identify the parcel out of which delivery is to be made. The signing of an order for inspection shall entitle the buyer to eventual delivery of the goods specified therein and, should any substitution be made, buyer may claim a fresh tender and also arbitration to assess the amount of damages, if any, to be paid by the seller.

ARBITRATION.

No. 11.—Sellers and buyers may select any member or representative of any recognized firm in the Pará trade, in London or Liverpool, to act in the capacity of arbitrator.

UNCUT RUBBER.

No. 12.—No fine rubber which arrives in an uncut state shall be tenderable on a contract for forward delivery—this rule not to apply to any parcel shipped prior to August 1, 1901. Any parcel shipped before August 1, 1901, shall not be tenderable until fourteen days after completion of cutting and selection.

No. 13.—Island, Jary, Xingu, or Cameta, Fine, Entrefine and Negroes due for weighing-over on the third working day after date of contract or tender, unless otherwise stipulated.

Customary allowances, actual tare, and $\frac{1}{2}$ per cent. draft. Payment, cash (before delivery if required) in 14 days, less $2\frac{1}{2}$ per cent. discount.

AVIATION IN WAR.

THE first practical value of the aeroplane in war has been demonstrated by the Italians in their present disagreement with the Turks, where two aeroplane scouts were able to get valuable information regarding the movements of the Turks for the Italian garrison.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

THE leading article on this subject, in THE INDIA RUBBER WORLD of October 1, in its statements and deductions emphasizes the opinion I have frequently expressed, though I am not prepared to say that the business is even more of a secret industry today than it was twenty years ago. When the

writer of the article expresses some surprise at this, in face of the "constant interchange of ideas among foreign and

SECRETS IN RUBBER MANUFACTURE.

domestic managers and superintendents," and "their inspection of each other's plants," he is, of course, referring to American procedure, because in Europe, generally, there has been nothing of this "give and take" business. The English or German manufacturer does not discuss points of manufacture with his competitors, nor does he, except in very special instances, allow strangers to inspect his works. Apropos of this point, I am told that the ease with which foreign manufacturers could formerly obtain permission to visit and thoroughly inspect American rubber works is not reflected in present-day procedure, permission being now by no means readily given. I have often heard English manufacturers express their surprise, as well as their gratification, at the facilities afforded them of gaining additional trade experience at American factories, but I have never heard that it has caused them to be less exclusive with regard to their own factories when they have returned home. With regard to the statement that "as far as the world at large is concerned, the manufacture is wholly secret," if this holds good it is merely the result of indifference. The main facts of the manufacture are to be found nowadays in several books devoted to the subject, and there is no excuse for anyone who wishes to inform himself remaining in a state of ignorance regarding same. Trade secrets, however (among which I include apparently trivial details of manufacture), are not to be found in these books. Dozens of instances of what I have in mind might be cited, but it does not seem worth while taking up space with them. The matter, of course, is of importance with regard to the attempts which are being made to standardize rubber analyses. Personally, I was never optimistic as to the benefits to be expected from the co-operation of the manufacturers, one or two of whom were elected on an International Committee formed in London a few years ago. As these manufacturers were not chemists, their co-operation could only have been of benefit, so far as they let themselves go on the details of their factory procedure. With regard to the trade generally, I understand that hardly any replies were given to a set of queries duly drawn up, and addressed to the several manufacturers. In America, also, much the same thing was the experience of the Rubber Section of the American Chemical Society, with the result that the projected good work is in danger of being abandoned. This is not, as far as I am concerned, a case of being wise after the event, because I expressed pessimistic views at the inception of these schemes for progress and reform. Human nature will not be altered at the beck and call of this or that individual or committee, and it may as well be recognized that the difficulties induced by the exclusiveness of manufacturers are of such magnitude, as will not be easily overcome by those who essay light-heartedly to undertake the task.

In conclusion, I may perhaps be allowed to refer to the important subject of the washing of wild rubber, treated in another leading article in the same issue. The writer ignores altogether the existence of a feeling among individual manufacturers that, by special processes of their own, they can wash and dry rubber in a way such as will give a product superior to that obtained

by their competitors. Possibly, such a contention would, if closely investigated, be found greatly exaggerated. However, such methods exist and come under the category of trade secrets. The writer of the article says that it is not a fact that the trade knows what they are getting when they buy raw, unwashed rubber. Well, I cannot endorse this as a result of conversations with large buyers. The point they make is that they *do* know what they are getting when they buy rubber in the raw, and that they do *not* know when they buy it in the washed or semi-washed state. Whether or not they have any grounds for doubting the statements made to them with regard to washed rubbers, I have no idea, but it is a fact that in a good many quarters skepticism is rampant.

As was the case a year ago, Mr. Rawson, chairman of the Endurite Company, Limited, at the annual meeting in October,

THE RE-FORMING PROCESS.

had a good deal to say with regard to the present position and prospects of the Premier Re-forming Company, Limited, of which he is the promoter and consulting engineer. In the prospectus the experts used a somewhat cryptic statement to the effect that the re-formed rubber was in appearance in every way equal to new rubber. However, it appears that this assertion is not considered satisfactory or convincing by such large consumers as have habitually in their tender forms expressly barred the use of old rubber. The continued existence of this bar has led to the Premier company putting down plants to enable them to supply ordinary goods made from new rubber, where such are stipulated for. In this respect, therefore, they are ordinary rubber manufacturers and have to meet the close competition that exists. The Premier company, it appears, have made great progress in their sales of re-formed rubber goods, and all they want is an increase of business to pay dividends. This is a platitude which no doubt finds an echo in the breasts of many of us. It is interesting to hear that re-forming has already got beyond the stage of moulded goods, and that inner tubes are now in the market and are giving every satisfaction. Further experiments are in progress for the re-forming of wrapped goods made from the highest quality of rubber. The fact that the Premier company now has 483 customers, the majority of whom have sent repeat orders, ought to finally dissipate the erroneous impression that still exists in some quarters that re-formed rubber is no good. The new rubber goods are to be supplied by a new company, the Walthamstow Rubber Company, with a capital of £20,000. This company acquires a license to manufacture the new L. A. P. tire for taxicabs at a royalty of 10s. per tire. This tire, which is said to have given very satisfactory trials, has no inner tube and does not contain any fabric. It will be seen, then, that new rubber goods and re-formed rubber goods are to be made in the future side by side at the Walthamstow works and will be supplied to the public, the former by the Walthamstow company and the latter by the Premier company.

About two years ago the A. R. Syndicate, Limited, was formed with an authorized capital of £10,000. Of this, 9,000

ANOTHER SYNTHETIC RUBBER GONE WRONG.

fully paid £1 shares were issued to the vendors, the only other shares issued being to the value of £7. On June 11, 1910, the shareholders were asked to subscribe to further shares at par, but the response being so small, the directors did not proceed to allotment. It should be said that the syndicate was formed on the basis that the vendor was to bear all the expense of demonstrating the value of the process. This condition is said

to have been satisfactorily carried out in London, but the yield of rubber—from the tar which was the basic material—was not up to what had previously been obtained in Paris.

As efforts to obtain further capital have failed, it was decided to place the syndicate in liquidation, and a motion to that effect was put forward at the extraordinary general meeting, held after the ordinary meeting on October 31, in London. The chief creditor is the secretary for office rent and advances. There are several shareholders who got in at 30s. per share, on faith in the brilliant future predicted, and presumably the shares dealt in were those allotted to the vendors.

These works, which are adapted for the manufacture of mechanicals, are now on offer as a going concern. The company is housed in a mill adjacent to the waterproofing works of J. Mandleberg & Co., Limited, at Pendleton, Manchester. Formerly (that is, two or three years ago) it was located in the mill of the defunct Hyde Rubber Works, Limited, being a resuscitation of the latter under a new name by Messrs. Mandleberg, who had bought the plant and machinery when the Hyde works were sold by auction. At one time the Hyde works, when they were known as the Hyde Imperial Rubber Company and were owned by Messrs. Cresswell & Cohen, did very well. This was at the commencement of the cycle tire boom. At a later period, however, misfortune overtook the concern, and this misfortune seems to be dogging it yet. Of course, the sale of the Unity Company has nothing whatever to do with the business of J. Mandleberg & Co., which shows continued progress year by year.

This company is now engaged in making considerable extensions to its existing premises at Neate street, Camberwell, London. This has been necessitated not only by a general increase of business, but particularly by the enlarged demand for the Dermatine valve fitted with the patent anchor bush. This is largely used for the Edwards and other air-pumps. The company has of late years developed a regular business with gold-mining companies. One article in particular demand is Dermatine belting, 80 yards long and 23 inches wide, for Ingersoll drills, while another is Dermatine hose for compressed air drills. Mr. C. R. C. Hart, who has for so many years been connected with the management, was in August last appointed managing director.

There is not to be any general strike among rubber workers, such as was referred to in these notes a few months ago at the period of general unrest. There have been some small strikes, concerned with individual works, and no doubt there will be others of similar importance. The workers, however, are not yet in a sufficient state of organization to initiate a general strike with any real hope of success. There is, however, a movement on foot to form a general rubber workers' union, and when this matures we shall see—well, what we shall see.

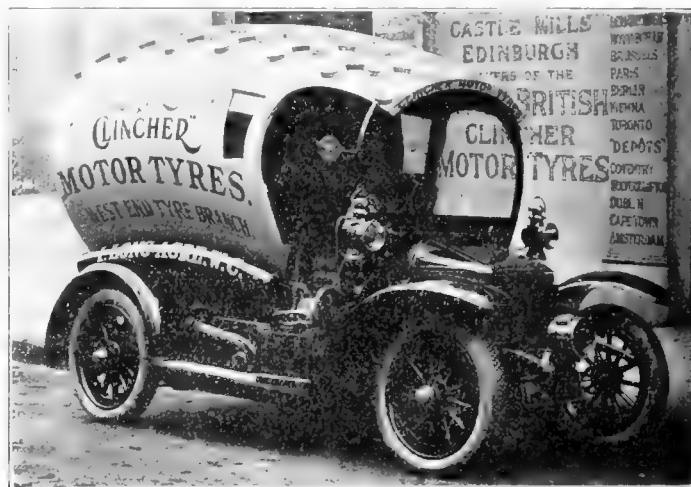
Messrs. Dreyfus & Gaisman have started new works called the Hooley Hill Rubber Company at Guide Bridge, near Manchester. The main branches are rubber

reclaiming and rubber heel manufacture. Mr. Dreyfus is a brother of Dr. C. Dreyfus, managing director of the Clayton Aniline Company, Manchester, a concern which has long been engaged in the manufacture of ordinary and special solvent naphtha for the proofing trade. These works, by the way, have recently passed into the hands of Swiss owners, though the present management remains in office and the solvent naphtha business goes on as before.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

A FINE ADVERTISEMENT FOR CLINCHER TIRES.

THE cut shown below of an automobile with a body in the form of a large imitation of a section of a clincher tire is a



NORTH BRITISH RUBBER CO. DELIVERY VAN.

fine advertisement, as it is bound to attract a great deal of attention wherever it is seen. It is a creation of the North British Rubber Co., Limited, Castle Mills, Edinburgh, Scotland.



THE EDITOR AS SEEN ABROAD.

Our esteemed contemporary "The India Rubber Journal," of London, has heard that the editor of THE INDIA RUBBER WORLD has possessed himself of a farm. Acting on that information, it recently produced the above exact and painstaking picture with this caption: "Back to the Land. Mr. H. C. Pearson, Editor of our New York contemporary, has taken up farming."

Some Rubber Interests in Europe.

A DEPENDABLE LINE OF MACHINERY.

A COMPLETE and effective line of rubber plantation, rubber factory, gutta percha and balata machinery is made by David Bridge & Co., Limited, engineers and rubber machinists, of Manchester, England, and sold extensively wherever rubber is grown or manufactured.

Among the specialties made by this company are a three-bowl steam-driven calender; easy to reverse and said to do exceedingly effective work; hydraulic, belting and sheeting presses made with three platens or two-day lights, twenty five feet long and fifty inches wide, complete with hydraulic gripping and stretching features, claimed to be the largest made in England, or on the Continent.

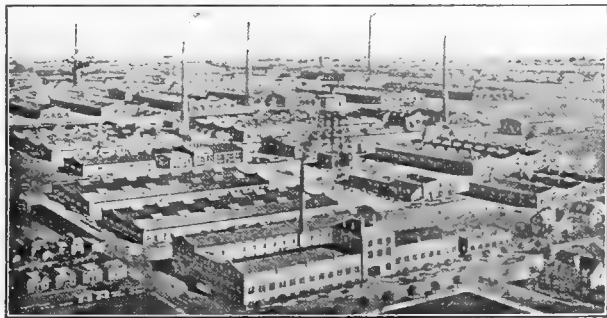
The Bridge company issue a number of comprehensive and profusely illustrated catalogues indicating the size, appearance and general province of their various machines, which may be had upon request.

This well-known machinery is produced under the personal supervision of Mr. Robert Bridge, the head of the house, and one of the most successful rubber machinery men in Europe.

E. DE HAEN'S NEW YORK AGENTS.

Here is a view of the extensive plant of E. De Haen in Seelze, near Hannover, Germany, a concern now celebrating the fiftieth anniversary of its founding by Dr. Eugen De Haen. This is one of the oldest and largest chemical factories in Europe.

One of the chief specialties manufactured by this firm is sulphuret of antimony, used in the rubber industry. They can deliver this article in any desired shade, either absolutely free of



CHEMICAL PLANT OF E. DE HAEN.

free sulphur or with any desired percentage of free sulphur up to 50 per cent. and there is, moreover, the absolute guarantee that they will always deliver the same quality and color as they have first delivered.

E. De Haen will always make a special analysis of any sample which may be sent by their American agents. They have appointed as their American agents Messrs. Pfaltz & Bauer, 300 Pearl street, this city, who will at any time quote prices and send samples and who will also carry a stock.

NEW HAMBURG RUBBER SUBSTITUTE.

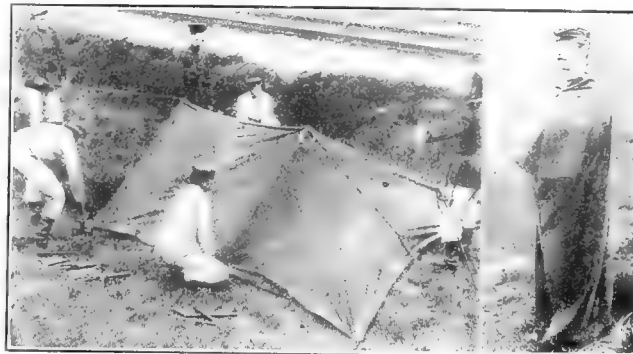
UNDER the style of Elastozen G. m. b. H., a limited company has been incorporated at Hamburg to manufacture a rubber substitute under the patent of H. Knoll.

PROWODNIK CO. PUSHING AUSTRIAN TRADE

WITH a view of marketing the products of the Prowodnik Company, of Riga, the Russische Gummiwaren-Import Actien-Gesellschaft (Russian Rubber Goods Import Co.), has been established at Vienna.

A COAT BY DAY, A TENT BY NIGHT.

Clever people the Germans. Here is an ingenious device of theirs that considerably lightens the burdens of the infantryman. They have devised a rubber coat which when taken off at night



COATS MADE INTO A TENT.

RUBBER COAT.

and buttoned into a few other coats can be converted into a tent that adequately covers as many men as have contributed to it.

Here is a cut taken from a photographic reproduction in "Popular Mechanics," which shows on one side a soldier in his rubber coat and on the other side the combined coats being formed into a tent.

GERMAN RULES FOR SORTING AND PAIRING RUBBER SHOES.

According to the *Gummi-Zeitung*, many complaints are heard in Germany as to rubber shoes not matching, this complaint being due to want of care in sorting and pairing. It is a mistaken policy, it is added, to allow such an occurrence, as nothing is a better advertisement for a factory than for its shoes to be carefully assorted in description, size, quality, shape, color, etc.

Particular attention should be paid to uniformity of height of the back, front and sides in each shoe of a pair. A good eye and some experience are needed for this work. Each single pair should be fastened together, either with string or press-buttons, or even with clips. Thus, it is remarked, the overseer responsible for the supervision of this branch of manufacture should not lose sight of the shoes after vulcanizing, but should keep strict watch on them until they are packed.

For the purpose in view, the following course is suggested:

1. After leaving the last the shoes to be sorted by quality into "firsts" and "seconds."
2. Every shoe ought to be examined separately for manufacturing or other defects.
3. Shapes, widths and numbers to be sorted.
4. The various marks to be correctly stamped.
5. The separate pairs to be grouped right and left, according to numbers.
6. The fastening together of the separate pairs.

The shoes are then ready to be sent to the packing room. By the observance of these rules it is claimed that quick and satisfactory service will result.

THE ITEM WHICH APPEARED among the trade notes in the November issue of this publication—which, coming from a European correspondent, seemed to be well substantiated—which stated that it was rumored that the United States Rubber Reclaiming Works contemplated erecting a reclaiming plant in St. Petersburg, was an error, as it is stated by that company that no such enterprise is in contemplation.

The Rubber Industry of Japan.

(By our Special Correspondent.)

AMONGST the most progressive of modern industries is the manufacture of rubber in Japan; the Japanese factories in that line developing their plans year by year. This fact is clearly illustrated by the following comparison of the aggregate crude rubber and gutta percha imports at two stages:

Fiscal year.	Kin.	Pounds.	Yen.	Equaling
1905	547,377	729,838	845,950	\$422,975
1910	1,193,146	1,590,891	3,042,396	1,521,198

It will thus be seen that Japan imported during the first half of the fiscal year 1910 more rubber than had been received during the whole of 1905. As shown elsewhere, the most recent statistics indicate the continued progress of this increase.

Japanese economic authorities speak with marked commendation of the rubber industry, for such a development of its industrial resources. The importation and resulting consumption of crude rubber is an unfailing indication of growth, much more reliable than the returns of horsepower employed. These figures, it has been asserted, are kept as low as possible, with a view to avoiding the burden of the taxes levied under that head.

INCIDENCE OF NEW JAPANESE TARIFF.

In view of the changes in the Japanese tariff, which went into effect July 17 and which were dealt with by THE INDIA RUBBER WORLD in August, 1911 (page 454), interest attaches to comparative returns for June and August of the imports by that country of rubber and its manufactures.

Crude rubber and gutta percha still entering Japan free of duty, the figures show a consequent healthy increase, the 147,263 pounds in June, value \$102,961, having risen in August to 167,032 pounds, value \$129,595. This development is attributed to the encouragement the new tariff affords to Japanese industry.

Among dutiable goods the following results are shown:

FOR FURTHER USE IN MANUFACTURING.

	June, pounds.	August, pounds.	June, dollars.	August, dollars.
Plates and sheets, hard rubber...	33,832	3,553	32,500	2,520
Tubes and rods, hard rubber...	21,295	519	19,359	1,117
All other.....	67,959	42,708	16,391	14,249
	123,086	46,780	68,250	17,886

MECHANICAL.

Engine packings.	58,507	46,653	11,112	11,245
Hose and machine beltings	6,500	4,045	7,776	1,643
	65,007	50,698	18,888	12,888

INSULATED WIRE, ETC.

Submarine and underground cables	1,068,280	3,111	39,004	231
All others.....	1,939,220	198,831	276,933	22,827
	3,007,500	201,942	315,937	23,058

APPAREL, ETC.

Rubber boots....	480 pairs	.....	353	.....
Rubber overshoes	5,384 pairs	.....	2,367	.....
Elastic boot web-bings	7,582 sq. yds.	3,808 sq. yds.	17,144	7,519
Waterproof cloth	6,511 sq. yds.	2,109 sq. yds.	3,292	1,782
Elastic bands and cuds	not shown	not shown	3,566	469
Air pillows	8,880	843	4,686	508
	not shown	not shown	\$31,408	\$10,278

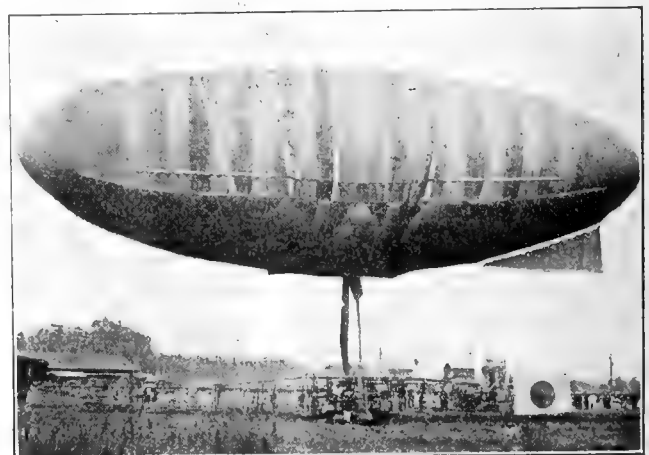
SUMMARY.

	June, 1911, dollars.	August, 1911, dollars.
For further use in manufacturing...	68,250	17,886
Mechanical	18,888	12,888
Insulated wire, etc.....	315,937	23,058
Apparel, etc.....	31,408	10,278
Aggregate	\$434,483	\$64,110
	(June, 1911)	(August, 1911)

That in some items the reduction has not been even greater, is doubtless owing to the fear of deterioration through protracted storage, having prevented the ante-tariff importations from covering all the prospective requirements of the near future. The total absence of imports during August of rubber boots and shoes is the most striking illustration of the prospective effects to be anticipated from the new tariff when in more complete operation.

MR. ISABURO YAMADA'S AIRSHIP.

For days and weeks past "Yamada's airship" sailed for two or three miles over the country in the neighborhood of Tokyo, at a height of 700 or 1,000 feet.

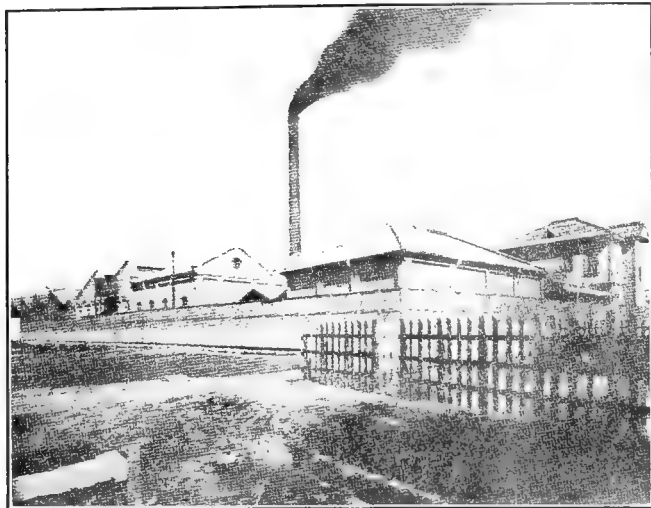


PREPARING TO SAIL YAMADA'S AIRSHIP, No. 3, AT OSAKI, ONE MILE FROM TOKYO.

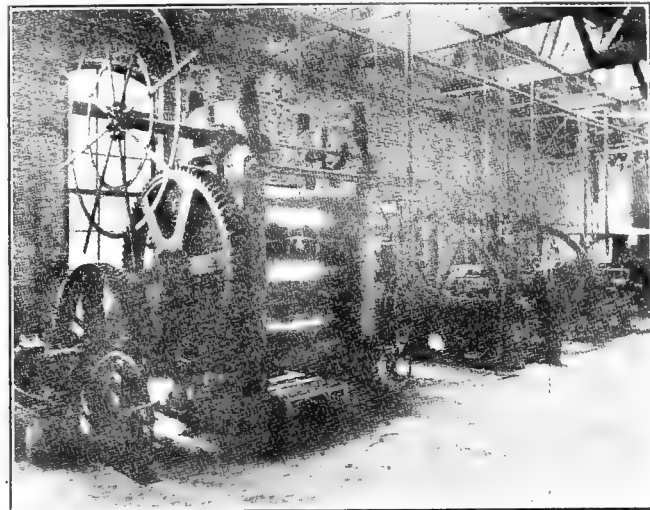
A very enthusiastic and practical aviator is Mr. Isaburo Yamada, who is a member of the family of Mr. S. Yamada, editor of the "Gomu Shimpo," the Japanese rubber organ. His first plans for an airship were drawn as early as 1896, and after six years' study, he accomplished in 1902 the construction of a relatively successful model. Further improving it, he finally achieved such a degree of perfection as to warrant its being adopted by

the military authorities of Japan, as the first Japanese airship. In 1905, it was used during the Russo-Japanese war for the purpose of looking down upon the fortifications of Port Arthur.

Subsequently taking up for his own account the construction of airships, he turned out No. 1 in the summer of 1910, afterwards



NIPPON ELECTRIC WIRE AND CABLE CO.



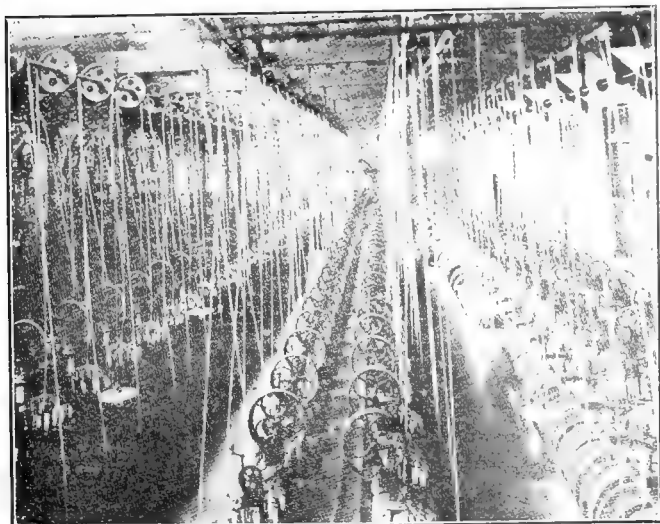
CALENDER AND MIXING ROLLER.

devoting his attention to No. 2, which was completed by spring, 1911; its anticipated flight being, however, delayed by bad weather until May. No. 3 was ready by the middle of July, 1911.

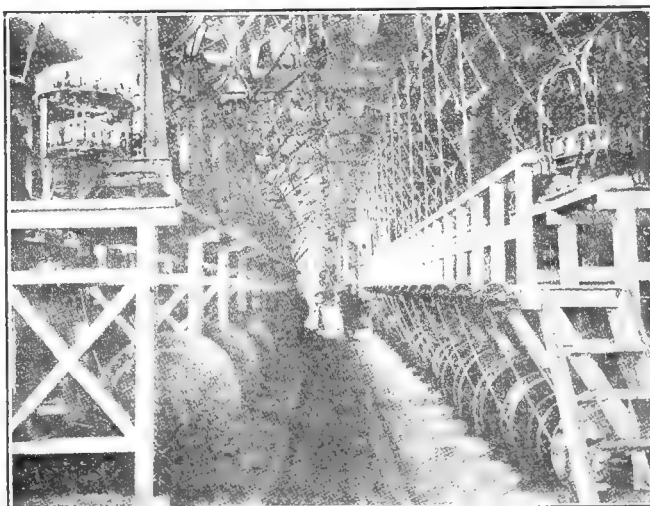
The fabric of silk and rubber used in these airships, is made by Mr. Yamada himself; being composed of Habutai (a kind of silk cloth covered with a thin coating of rubber). Great resistance to heat and absence of weight is claimed for this material, which the inventor is proud to have originated.

Nor has this new cloth been kept in the background. It occupied a prominent place at the recent International Rubber Ex-

Fujikura Cable Works, a joint stock company, with a capital of \$500,000; The Sumitomo Electric Wire Department in Osaka; The Tsuda Co., a limited partnership with a capital of \$10,000 in Kyoto—these factories yearly manufacture insulated wires and cables (except submarine and underground), valued at \$5,000,000. The value of imported submarine and underground cables and all other wires and cables is about \$1,700,000. The Nippon Electric Wire and Cable Co. manufactures one-fourth of the estimated Japanese production. This company was established at Terashima, Minami-Kazushika-gun, Tokyo, March, 1907, pur-



SMALL BRAIDING MACHINES.



LARGE BRAIDING MACHINES.

hibition in London, when two ten yard lengths were displayed by the maker, as illustrating the products of his factory, No. 53 Takanawa-Kitamachi, Shiba, Tokyo, Japan. This co-operation of the Far East was noted with much interest by European aviators.

The photograph reproduced shows the preparations for sailing one of the airships.

chasing Mr. T. Komori's electric wire works at the same place. In June, 1910, after passing through financial and technical difficulties, the Furukawa Mining Co. came to its assistance, and Mr. J. Oga took the post of managing director; Mr. T. Komori became manager, and Mr. S. Soki, from Yokohama Insulated Wire Co., became sales agent, Mr. S. Kurozawa becoming engineer-in-charge. It is said now that Mr. S. Kurozawa has im-

proved all of the processes, so that the plant is very complete. He studied under the direction of Mr. M. Wachter, an engineer at the Yokohama Insulated Wire Works, and, being possessed of much mechanical ability, is accounted one of the best equipped works managers in Japan. The product of the factory today embraces lighting and power cables, insulated wire, rubber and weatherproof, lead-covered and armored cables, etc.

The factory is exceedingly well situated on the Sumida River, the grounds being about three acres in extent. It is on the railroad, and an electric line also runs close to the factory. The motive power is steam. The boilers are Dutch, of the Alban water tube

BRITISH RUBBER FACTORIES IN JAPAN.

In considering the incidence of the new Japanese tariff, it should be remembered that out of the total Japanese receipts of crude rubber in 1910, about 1½ million pounds, one-third was imported through Kobe, principally by the two British firms located near that point (Ingram Rubber Co., at Shirike, Hyogo, and Dunlop Rubber Co., at Wakinohama). The object of these concerns erecting branch factories in Japan, was to produce manufactures of rubber within that country, out of materials from England and the colonies, and under the sole direction of Englishmen. These arrangements have, resulted in conjunction with



S. KUROZAWA,

[Nippon Electric Wire and Cable Co., Ltd.]



S. YAMADA,

[Editor of the "Gomui Shimpō."]

type, the engine (compound) making 150 revolutions a minute. The washers, mixers and calenders, as illustrated, were built by Krupp & Co., Germany. The tubing machines came from Germany and the United States. The 500 braiders are from the New England Butt Co. The testing apparatus came from Eliot & Bros., England, the saturating tanks from America, the measuring machines from Austria. About 500 hands are employed, 300 men and 200 women. The copper wire used is drawn for the company by the Furukawa Mining Co. The customers of the company are the war, navy and railroad departments of Japan, and electric companies in both Japan and China.

RUBBER HEELS IN ITALY.

There is a very active market in Florence, Italy, for rubber heels, and the demand seems to be steadily increasing. The stone pavements and the stone or tiled floors in practically all houses, make their use almost a necessity. In attaching the rubber heels to shoes it is not customary to prepare the heel in any way. The cheap disc style of heel pad is fastened to the shoe by a screw. The heel-shaped pads are nailed but not glued to the heel. These two types of heel are on sale in every shoe and repair shop, and are also sold largely on the street by pushcart men. The disc type varies in size from ¾ inch to 1¾ inch, and in retail price from 10 to 30 cents per pair. These pads are of French, German and Italian manufacture. They are of cheap material and are quickly worn out and easily detached. The heel-shaped type retails at 17 to 31 cents per pair, and is generally a German or English product.

the new Japanese tariff, in various articles being now made in that country, which had formerly been imported.

Another cause of the augmented importation of crude rubber is said to be the increased demand for the tire industry. Many a steel tire has been replaced by a rubber one, this having recently been specially the case with the "Jinriksha." This last-named fashion has apparently come to stay.

Kobe seems to have received a large proportion of the recently increased Japanese imports of crude rubber, which fact clearly indicates the participation in that movement of the two English firms to which reference has been made.

RUBBER INSULATION AND FUNGUS GROWTH.

German electricians have been discussing the problem of avoiding fungus growth on rubber insulation. This growth takes place sometimes even when the insulated wires are enclosed in a conduit of enamelled iron. The fungus growth, which destroys the insulation, is promoted by iron rust, which, with the consequent fungus growth are impossible except where there is some moisture. The remedy therefore is to insure the dryness of the tube interior by blowing hot air through it, and then all future possibility of dampness must be prevented. If it is impossible under the circumstances to keep the inside of the tube dry, a good quality of red lead paint is the best preventive of damp and fungi.

A BOOK for rubber planters—Mr. Pearson's "What I Saw in the Tropics."

Some Notes on Rubber Planting.

ENGLISH INVESTORS CRITICIZE AMERICANS.

At a meeting of the shareholders of the United Malaysian Rubber Co., Ltd., held November 19, in London, a resolution was passed asking the American vendors to refund a million out of the million six hundred thousand shares paid to them on the formation of the company.

The company was formed in 1910 by the Malaysian Rubber Co. of America, which company was incorporated June 18, 1909, under the laws of New Jersey, with \$3,000,000 capital authorized, with John L. Elliot, of No. 71 Broadway, New York, as president, and a board of directors that included Messrs. Cornelius Vanderbilt and Robert Goelet, also of New York. The new town established by the company in Borneo was called "Goebilt," derived from the names of these two directors.

When the London company was formed, a great deal of stress was laid by the promoters on the fact that Messrs. Vanderbilt and Goelet were interested in the enterprise. Large and immediate profits were promised, amounting to \$800,000 for the first year, but the first year and a half are said to have shown a loss of over \$200,000.

Messrs. Vanderbilt and Goelet disclaim any responsibility for the use of their names in encouraging the English investor. They appear to have gone into this enterprise on the same footing as other investors, on the strength of the very favorable outlook pictured to them by the promoters of the enterprise.

FEDERATED MALAY STATES RUBBER CO., LTD.

According to the report of the Belgian company, registered at Antwerp under above title, the production of rubber for the business year ending May 31 last was 453,806 pounds, as compared with 293,066 pounds for the preceding annual period. This result, while qualified as being very satisfactory, is about eight per cent. below the estimate which had been found of the output.

For the quantity sold during the period under review, the average price realized equalled about \$1.27, after deducting loss in weight and selling expenses; the stock on hand May 31 having since been realized at a price in excess of the valuations made at that time. Estimates of the production for the current year place the quantity at 700,000 pounds, this increase being apparently largely due to the number of trees approaching the productive stage.

With the object of discharging liabilities incurred through the acquisition of further properties, as well as of providing for the requirements of the company's holdings (now representing 4,150 acres), it is proposed to issue preference shares to an extent of equal to \$400,000.

SEAPORT (SELANGOR) RUBBER ESTATE, LIMITED.

(FEDERATED MALAY STATES), June 1910, 2,000 acres, of which 1,046 planted (chiefly in 1906). Output for twelve months to end of June, 1911, 17,717 pounds. Estimate for year ending June 30, 1912, 115,000 pounds.

STRAITS PLANTATIONS, LIMITED.

According to the report presented at the twelfth annual general meeting of the above company, there are now 1,623 acres planted with about 78,000 trees, two-thirds of which have reached the bearing stage. The labor force has been more than doubled since June, 1910.

TANDJONG RUBBER COMPANY, LIMITED.

(SUMATRA). Registered March, 1907, 8,071 acres, of which planted 3,521 acres, chiefly in 1908. Crop for 1911-12 is estimated at 30,000 pounds. Necessary machinery for preparation of rubber has been installed. Growth has been excellent, notwithstanding the drought of the early part of the year. No serious disease has been manifested.

NORTH LABIS (JOHORE) RUBBER & PRODUCE COMPANY, LIMITED.

The first annual report of this company (registered in April, 1910), shows that by the end of the current year about 1,240 acres will have been planted, out of a total area of 5,033 acres. The company has been pursuing a conservative policy, wishing to be perfectly satisfied that the planted area will be properly kept up, before proceeding with further extensions.

SCOTTISH MALAY RUBBER COMPANY, LIMITED.

FEDERATED MALAY STATES, February, 1906, 2,455 acres, of which 1,577 planted. Crop for ten months ending October 31, 1911, 70,851 pounds. Same period last year, 22,351 pounds.

EXPORTS FROM FRENCH WEST AFRICA.

Exports of rubber from French West Africa for 1910 amounted to 4,637 tons, valued at \$7,106,532. Since 1910 there appears to have been a steady decrease in exports and the decline in price has naturally affected the grades from all the colonies, especially those from Senegal and French Guinea. A report comments on the heavy adulteration of rubber in Guinea as follows: "Unfortunately rubber produced in French Guinea suffered a shrinkage in price in the world's market as a result of too frequent adulteration by the producers. To remedy this fault a Government decree was issued forbidding the sale and circulation of rubber other than in slabs or thin things."

RUBBER GROWERS' ASSOCIATION.

According to the third annual report of the Rubber Growers' Association, the membership at present numbers 302, there having been 138 new members enrolled since the last annual meeting. While the work of the association has chiefly been in connection with rubber production in the Federated Malay States and Ceylon, cultivation has been proceeding in other countries, where there would be in due course an opening for the machinery of the association. An independent section was recently formed, dealing with Borneo, similar arrangements being in progress as to Sumatra.

In connection with the Brussels International Exhibition, the association showed a collection of samples and photographs, the exhibit being awarded a Grand Prix diploma. Dealing with the co-operation of the association in the promotion of the late International Rubber Exhibition (in respect to prizes and other matters of importance), the opinion is expressed that exhibitions are of benefit to the rubber planting industry. The action of the association on the questions of a research chemist for Ceylon and of the Malaya research fund are duly recorded. The association is evidently doing good work in the extensive field which it covers.

NEW MEXICAN ARRANGEMENTS OF GUAYULE RUBBER CO.

According to the annual report of the Guayule Rubber Co. to March 31, 1911, it had been found necessary, in order to comply with Mexican legal requirements, to have a subsidiary company in that country. This requirement had been fulfilled by acquiring the whole share capital of the Compania Exploradora de Caucho Mexicano.

It is of interest to note that notwithstanding the internal disturbances, the output has been more than maintained, having amounted to 2,304,371 pounds for the last business year, against 2,205,509 pounds for the preceding annual period; while the operations of the Mexican company resulted in an average profit equaling 16 cents per pound. The average cost of production and distribution for 1910-11 equaled 52 cents per pound of rubber produced, as compared with 32 cents for 1909-10. The total dividend paid amounts to 15 per cent.

RUBBER AND BALATA IN BRITISH GUIANA.

(By Our Special Correspondent)

ON October 12, Professor Harrison, Director of Science and Agriculture, and members of the Board of Agriculture, paid a visit of inspection to the experimental fields in the Botanic Gardens, Georgetown. The most interesting part of the whole inspection (probably because of its novelty to the majority of the party), was the demonstration of the germination of Pará rubber seeds at different stages. Fifty-four thousand seeds had arrived from Singapore that morning, packed in tin boxes in charcoal, in 5 per cent. of water. The boxes were sown in canvas and the professor pointed out sundry lids, which had



DAVID YOUNG RUBBER ESTATE (BRITISH GUIANA), LIMITED.

simply been slipped on—not soldered; the latter expedient being likely to make the seeds get lost and rot. After being taken from the boxes, the seeds were placed close together in carefully prepared beds, composed of cocoanut fiber, charcoal and other light stuffs. A few of the seeds had already started germination.

Another stage in the process of cultivation was then shown, the seeds, which had arrived a fortnight previously, having sprouted. Those which came from Singapore gave an exceptionally good germination—between 70 and 80 per cent.; but those from Ceylon showed a miserably poor return—about 5 per cent. out of the 29,000 planted.

In the nursery, on highly manured beds, *Hevea Brasiliensis* and *Manihot Glaziovii* were making poor progress, the soil being too heavy and too rich. The *Sapium Jenmani* variety, however, was doing rather better. *Robusta* coffee, which is very popular in Java, where it is interplanted with rubber, was making excellent progress.

Heavy rice fields extending back of the gardens, besides rubber trees of several varieties, were also inspected. Originally the varieties planted were *Hevea Brasiliensis*, *Manihot Glaziovii*, *Sapium Jenmani*, *Ficus elastica* and *Castilloa elastica*. The two last-named varieties had died away to unfavorable conditions, and the other varieties had had but a precarious existence. The oldest *Hevea* was planted in December, 1907, but the soil being heavy, it had not made satisfactory progress. The tree was in the flowering stage. To overcome the soil-weight difficulty in *Heveas*, an experiment is being tried in the field—vertical forking. Only a few of the *Manihot* variety had survived, and a five-year-old *Sapium* was disappointing.

Messrs. Boyle & Co. have received from their balata grants in the interior, from September 25 to October 21, 86,829 pounds of balata, on which they have paid royalty amounting to \$1,736.58.

Mr. W. J. Smyth, manager of Demarara Rubber Co., Limited, has despatched a balata prospecting expedition of 23 men, under a well-known bushman, to the company's points out at Rema and Quitaro rivers, where the grants are reported to be very rich.

Work among David Young Estates, Limited, the pioneer rubber plantation in the colony, has been shut down. The reason given for the collapse of the company's shares is that a certain English syndicate (which held three-fifths of the shares) has "come a cropper," with the result that no working capital is available. It is stated, however, on good authority, that a new company is being formed in London, to take over the property and provide abundant working capital. Present prospecting work on the concessions around the plantation, has revealed the existence of a large quantity of indigenous *Sapium Jenmani* rubber trees. So far, the yield from the cultivated *Sapiums* which have been tapped has proved disappointing. The *Hevea Brasiliensis* trees have made splendid progress.

One of the problems which confront those who cultivate *Hevea Brasiliensis* in the colony is the possible danger of the cross fertilization of Pará rubber trees with local native *Heveas*. Such hybridization would become apparent in the second generation, i. e., seed from hybrids, which might appear for practical purposes. *Brasiliensis*, might and probably would give seeds producing hybrids of *confusa*, and *Brasiliensis*. The planter, therefore, should destroy every tree of indigenous *Hevea* varieties which may be found growing on any land to be planted with Pará rubber. This is the view, I understand, of the Department of Science and Agriculture.

At a meeting of the Board of Agriculture, Georgetown, on October 24, Professor Harrison, Director of Science and Agriculture, gave an official report of experiments, which his department had been carrying on for the past few years, with indigenous *Sapium Jenmani* rubber trees of the colony.

The experiments included five tapping periods, which showed following results:

1. September, 1908.....	8.33 oz. per tree.
2. October, 1909.....	5.16 " " "
3. March, 1910.....	1.89 " " "
4. August, 1910.....	1.93 " " "
5. November, 1910.....	1.08 " " "

Thus during a period of two years the yield of dry rubber from mature *Sapium Jenmani* trees of various sizes, from 30 to 92 inches in girth, at 3 feet from the ground (the majority being between 40 and 70 inches in circumference), was 18.39 oz. per tree.

Six trees, which had been practically run dry by previous tapplings, were selected during the 1910 trials, for the purpose of further experiment, when a diminished yield was obtained. The repeated tapping of *Sapium* trees had resulted in the gradual deterioration of quality; the rubber yielded on the first tapping being of excellent quality, while in subsequent tapplings it became more and more sticky, until the latex failed to coagulate at all. The proportion of rubber in the latex varied from about 18 per cent. in 1908, to 15 per cent. in 1910 for trees tapped for the first time; while that yielded by trees which had been subjected to tapping during the several periods contained about 11 per cent. Other interesting points of detail were likewise brought forward by Professor Harrison.

SEVERAL losses through accidental causes have lately been incurred by balata companies. These include the loss of 5,000 lbs. by M. Bugle & Co., owing to a boat disaster at Waraputa Falls, and more recently that of 1,300 lbs. belonging to the Consolidated Rubber and Balata Estates, Ltd., which were sunk in the Corentyne River.

The Obituary Record.

AUGUSTE D. SCHLESINGER, who died at his home at College Point, New York, Tuesday evening, October 31, 1911, was born at Lausanne, Switzerland, December 25, 1828. When seven years of age, his father's family moved to Hamburg, Germany, where he attended school for six years, and then learned cabinet making. In 1846 he came to America, settling in Naugatuck, Connecticut, in 1847, where he was connected with the Goodyear's Metallic Rubber Shoe Company.

In 1856 he was offered a position with the Beacon Dam Company at Beacon Falls, Conn., where the manufacture of hard rubber was being developed; his knowledge of the German and French languages was of great value to him here, since many of the employes spoke no English. In 1858 Conrad Poppenhusen, owner of the Enterprise Works at College Point, bought out the Beacon Dam Company. Mr. Schlesinger retained his connection with the firm, being made its superintendent in 1859, when the name was changed to the American Hard Rubber Company. In 1860 all machinery was moved from Beacon Falls to College Point under Mr. Schlesinger's direction, many of the employes moving with the plant, and the concern was known as Poppenhusen & Koenig until 1867, when the name The India Rubber Comb Company was adopted, with Mr. Schlesinger as superintendent. When this company was joined by the Butler Hard Rubber Company and the Goodrich Hard Rubber Company in 1898, under the name of The American Hard Rubber Company, he was appointed general superintendent, serving until January, 1905, when he retired because of failing health.

Mr. Schlesinger was active in public matters concerning the former village of College Point, being one of the incorporators of the village, serving as a trustee for eighteen years, and as village treasurer for twelve years.

When the Poppenhusen Institute was founded in 1868, he was a corporate member of the Board of Control, remaining a member until 1906, when his health compelled him to decline re-appointment. He also was treasurer of the board from 1878 to 1904.

He was an incorporator of the College Point Savings Bank in 1873, and a trustee up to the time of his death; also a trustee of the Flushing Cemetery Association from 1883 to 1905, and its president from 1896 to 1905.

In 1853 Mr. Schlesinger married Miss Jerusha Clark Pitkin of East Hartford, Conn.; Mrs. Schlesinger died in 1906. A son, Alfred H., and four daughters survive him. The funeral services were held in his home on the morning of November 3, the Rev. Mr. Dangremond officiating. The interment took place in Flushing, L. I.

The factory of the American Hard Rubber Company, in College Point, was closed during the funeral services of Mr. Schlesinger and many of the older employes were among those who gathered in his honor.

Mr. Schlesinger was in every way an exceedingly strong man, physically and mentally. Years ago, when College Point was but a village and the rubber works the only industry, the men

gloried in the fact that at their outings "the boss," when he could be induced to compete, outclassed them all in feats of strength and endurance. He was a strict but kindly disciplinarian, and the old employes, who still hold his memory in loving reverence, are wont to say, "He was a just man." A linguist, a scholar, and a practical man of affairs, he was for many years not only the head of the great factory at College Point, but one of the fathers of the town, the counselor of its dwellers, the helper of the poor. Always possessed of a manly dignity, he leaned toward the stateliness of the "old school" rather than the informality of the present. For nearly ten years unable to walk alone, a prisoner in his spacious home, he was indomitably cheerful, mentally alert and undaunted.

As showing the thoroughness with which Mr. Schlesinger did everything, an experience when he was in Naugatuck is most illuminating. He had hired a traveling steeplejack to re-attach the lightning rod at the top of the great chimney of the old red mill, which had been torn away by the wind. His orders were that holes should be bored into the iron chimney-top, and that they should be counter-sunk and threaded, that the bolts might hold. The man put up his ladders, found them too short, and lashed a light ladder to the top. He then went up and in a short time returned, saying that the work was done. It did not seem that it was possible to have it well done in so short a time; so Mr. Schlesinger started up the ladder himself to examine the work. Just as he got to the light ladder, which clung so closely to the wall that there was barely room for his toes to hold on the rounds, the steeplejack came running behind up the ladder, climbed past him, and sitting astride the top of the chimney, proved that every part of the work was done according to orders. Then Mr. Schlesinger climbed down, and

added—in telling the tale—"I never was so glad of anything in my life as when I again felt the solid ground beneath my feet."

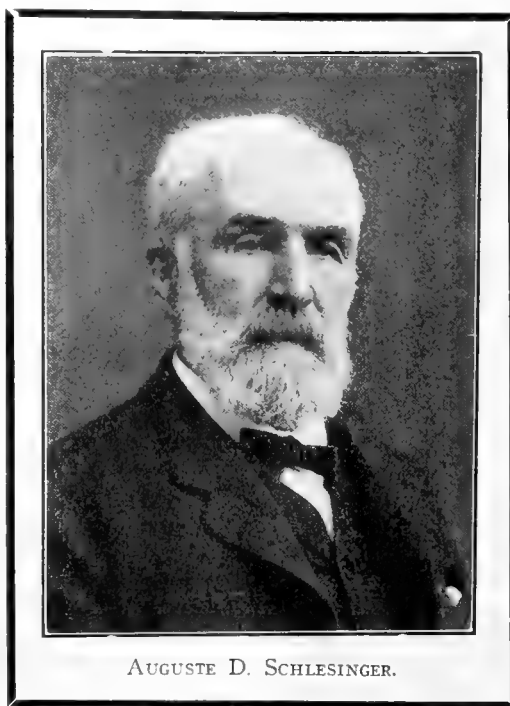
TRIBUTE OF THE RUBBER CLUB OF AMERICA.

It is with deep sorrow that we learn of the death of our Honorary Member, Auguste D. Schlesinger. A contemporary of Goodyear, a pioneer in rubber manufacture, and one whose knowledge was exact and comprehensive, the industrial world suffers a great loss in his passing. Sturdy, upright, wise, genuine, a rare counsellor, a loyal friend, full of pride in the great industry of which he was one of the founders, his loss is deeply felt. It is, therefore,

RESOLVED That in his death the Rubber Club of America and the rubber business at large have suffered an irreparable loss.

RESOLVED That we extend to his family our appreciation of his noble character, and our sympathy for them in their great bereavement.

HENRY C. PEARSON,
ELSTON E. WADBROOK,
GEO. P. WHITMORE.
Committee on Resolutions.



AUGUSTE D. SCHLESINGER.

EDWARD J. McCORMICK.

Edward J. McCormick, president of the E. J. McCormick Rubber Co., of New York, died October 29 at his home, No. 89 Keap street, Brooklyn, New York. He was born in Great Barrington, Massachusetts, 56 years ago and had lived in the eastern district of Brooklyn for many years.

Mr. McCormick's first business connection was with the late Eugene Doherty, of Brooklyn, with whom he was associated nearly twenty years. For a short time he was with the Boston Rubber Co., and later went to Germany, where he made the acquaintance of the late Dr. Heinrich Traun, of Hamburg, under whose patronage on his return to the United States he established the dental rubber business conducted under the name of Excelsior Rubber Works, now known as the Traun Rubber Co. Mr. McCormick's connection with the Mattson Rubber Co. commenced January 1, 1890, the business then established being known as the Imperial Rubber Works and incorporated under the present name of the E. J. McCormick Rubber Co. on January 23, 1911.

He belonged to Washington Council, K. of C.; St. Vincent de Paul Council, C. B. L.; the Friendly Sons of St. Patrick and the Church of the Transfiguration, where a requiem mass was said. The interment took place in Holy Cross Cemetery.

JOHN M. BRENNAN.

John M. Brennan, for a number of years foreman of the American Rubber Co., died recently at his home in Cambridge, Massachusetts. He was born in Ireland 80 years ago, but came to America when a young man. He was a veteran of the Civil War and a member of William H. Smart Post, 30, G. A. R. The funeral took place in St. Patrick's Church, Cambridge, and the burial in Malden, Massachusetts.

CLARENCE A. HAYWARD.

Clarence A. Hayward, one of the best-known rubber men in Rhode Island and the organizer of the Goodyear Rubber Co., Providence, died at his home, 273 Massachusetts avenue, Sunday, November 19, after an illness dating back more than a year. He was 60 years old.

Mr. Hayward was a sufferer from Bright's disease, but it was not until within the last few months that his condition became serious. He was able to be about until a short time ago and was confined to his bed only a few days.

He was born in Boston in 1852 and came to Providence in 1881. He engaged in the rubber business and opened a store on North Main street, which he conducted successfully for several years. The business expanded to such an extent that he formed a co-partnership with his brother, J. Francis Hayward, under the firm name of the Goodyear Rubber Co. This business continued for a long time and eventually became the Hope Rubber Co., one of the largest retail concerns in Providence.

In 1887 Mr. Hayward severed his connection with the Goodyear Rubber Co. and again started in business for himself. He opened a store in the Conrad Building, Providence, under the firm name of the Hayward Rubber Co., which he conducted for several years. He also had stores in Pawtucket, R. I., and Taunton, Mass., under the same firm name.

In 1880 he married Clara E. Stearns. She died in 1902. One son, Albert S. Hayward, and a daughter, Clara A., survive. The funeral was held Wednesday, November 22, at 2 o'clock, with services at the Woodbury Memorial Church, Providence.

Mrs. Abby Freeborn Piper, mother of Walter E. Piper, superintendent of the Boston Rubber Shoe Co., died quite suddenly on October 30 while visiting relatives in her native town of Warren, Rhode Island. Services were held at the home of her son at the Fells, Melrose, Massachusetts. Mrs. Piper was 69 years old and had been a resident of Melrose for the past nine years.

NEW TRADE PUBLICATIONS.

THE Gutta Percha & Rubber Manufacturing Co. of Toronto, Limited, Toronto, Canada, are sending out a very artistic catalog of their sporting shoes, illustrating both styles, ball-morals and oxfords, in their different yachting, vacation, bathing and tennis shoes. These shoes are made in a variety of styles and colors. They are made of white duck with white rubber, tan duck and tan rubber, green duck and green rubber, white duck and black rubber and various other combinations in color effects. A net price list insert accompanies the catalog.

Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut, sends out regularly its little monthly publication called "R-u-b-b-e-r." It contains some pages of display advertising and a few pages of readable text.

The United States Tire Co., New York, has circulated a little booklet, vest pocket size, entitled "The Tale of a Tortured Tire," which contains a short allegory in which the improperly inflated tire soliloquizes on its unhappy fate and its untimely blowout. It is designed to give the users of tires a better idea of how to use them.

The Hood Rubber Co. (Boston, Massachusetts) has recently issued a booklet entitled "What He Knows About Her Rubbers." It tells in narrative form the story of the manufacture of a rubber shoe from calabash to the carton. The story is a fairly familiar one, but the setting in this instance is somewhat out of the ordinary—the scene being laid at an afternoon tea. One of the guests about to depart assures her hostess that the rain outside has no terrors for her as she is shod in an excellent pair of rubbers. That introduces the subject. After a brief discussion they appeal to the lone man present and ask him if he can tell them anything about rubbers. Fortunately he is able to do so, having observed the gathering of rubber milk in the Brazilian forest and being familiar with all the factory processes. He gives them the story—with great discreetness not making it too prolix. The little book has a number of illustrations.

The B. F. Goodrich Co. (Akron, Ohio) has just issued a 16-page pamphlet, printed on heavy paper of a fine quality, calling attention especially to its solid tires made for brewers' trucks. The pamphlet has a front cover design of a handsome stein and is labeled "Prosit," the German student's equivalent for "Here's luck to you." The book illustrates the trucks of various brewing concerns equipped with the Goodrich tires and gives a few testimonials, one brewer writing that on his three-ton Packard truck his front tires traveled 15,000 miles and his rear tires 10,000 miles without getting out of order.

The Faultless Rubber Co. (Ashland, Ohio) has issued an exceedingly handsome—one might say impressive—catalog of its sundry, surgical, specialty and novelty rubber goods. The catalog is 10 x 14 inches in size, containing 46 pages, printed in red and black, on heavy paper of fine quality, with read leatherette cover stamped in gold. There was no skimping expense in the printing of this catalog. It gives a great variety of illustrations, some of them in colors, of the goods made by the company, including water bottles, all kinds of syringes, rubber gloves, rings, shields, covers, cushions, ice bags, tubes, sheeting, blankets, aprons and everything else used in surgical work—and a variety of toy balloons—which are some distance removed from surgical work. The catalog also gives prices of the various goods illustrated and many tables, and much other information.

The Luzerne Rubber Co. (Trenton, New Jersey) issues a small catalog, printed in buff and black, illustrating the company's output, including battery jars, syringes, knobs, insulators, handles, discs, pen stock and a great variety of other articles.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

The Editor's Book Table.

YEAR-BOOK OF THE AMERICAN ASSOCIATION OF COMMERCE and Trade in Berlin, Inc. 1911. [Paper, 8vo, 68 pp.]

THE annual report of the above association, in addition to the proceedings at the eighth annual meeting, contains a number of valuable statistical tables, showing the total foreign trade of the United States and Germany, as well as a comparison of the trading between the two countries. The table of declared exports from the various consular districts to the United States is of interest as showing the exact sources of importations. It would appear that nearly one-half of the 1910 exports were from Hamburg, Berlin, Frankfurt, Leipzig and Chemnitz. Another table of special interest shows a gain of 50 per cent. in German exports to the Philippines in 1910, as compared with 1909. During the same period German trade with Porto Rico had nearly doubled, and that with Hawaii more than trebled.

RUBBER FACTS AND FIGURES—NO. 7. BY M. S. PARRY AND E. M. Muravur. London: Fredk. C. Mathieson & Sons, second edition, April 1911. [Cardboard. 8vo. Pp. 202. Price, 2s. 6d., net.]

In view of the important changes taking place from time to time in the position of old rubber companies, and of the great increase in new flotations, the frequent issue of fresh editions has become a necessary supplement to any work (whether periodical or otherwise) dealing with rubber-planting companies.

The general idea of this handy volume is to facilitate comparison of the statistical returns of various companies by a classification, as nearly uniform as possible. Recognizing the preponderating importance of the Malayan States as a source of rubber, and the absence of a common basis in the cases of Java and Ceylon, the authors of the booklet institute a comparison between Malayan, Sumatra and Borneo companies. The prospective outputs and dividends up to 1918 express those points with mathematical accuracy, on the basis (it is to be inferred) of plantings now made or in immediate contemplation. As a guide to the prospective investor and to any one interested in the supply of rubber, this handbook justifies its title by the clearness and copiousness of its information.

LO STATO DEL PARÁ (BRASILE) A TORINO, 1911. TURIN. THE Turin International Exposition. [Paper. 8vo. Pp. 106.]

Combining records of the various features illustrated by the exhibits of the State of Pará at the Turin International Exposition, this booklet on the subject (issued by the Exposition authorities), in Italian, is interesting as well as instructive. Starting with an extract of the State budget, a brief but comprehensive treatise on the "Extractive Industries of the State of Pará" is lucidly illustrated by a graphic chart, showing the comparative importance of the yield of rubber as well as of other products of the State; rubber being by far the largest of them. Another chart illustrates the relative importance of the rubber shipments from that State to different markets; England and America having been practically running a neck and neck race for some years, the falling off in shipments to America in 1910 having let England get ahead. A number of interesting statistical tables lead up to a paper on the cultivation of *Hevea Brasiliensis*, with table showing the distribution of the existing plantations amongst the various municipalities of the State.

A MANUAL OF PHILIPPINE SILK CULTURE. BY CHARLES S. Banks, Bureau of Science. Manila, 1911. [Paper. 8vo. Pp. 54 + plates.]

While the production of rubber in the Philippines has been a subject of close study by local economists and botanists, the question of silk culture has likewise received attention from sci-

entists, and notably from the Manila Bureau of Science, with which Mr. Banks is officially connected. Silk and rubber, ultimately combined, as they are, in certain manufactures, have common interests at an earlier stage; the growth of mulberry and rubber trees being alike influenced by conditions of soil, climate and temperature. Hence, as an illustration of what scientific research may ultimately do for Philippine rubber cultivation, the "Manual of Philippine Silk Culture" has more than a sectional interest.

In successive divisions Mr. Banks treats the historical and botanical aspects of the subject, as well as the life history of the silkworm. Other heads include: Wild silkworms; enemies and diseases of same; the silk house, the mulberry and the details of propagation. In conclusion, various fabrics suitable for Philippine production are touched upon. The work amply carries out its avowed object, that of collating data for the guidance of those contemplating the production of silk on a commercial basis.

SEARCHLIGHTS ON SOME AMERICAN INDUSTRIES. BY JAMES Cooke Mills. Chicago: A. C. McClurg & Co., 1911. [Cloth, pages 299. Price, \$1.50.]

Mr. Mills has written a book full of information on a variety of industrial topics. His chapters are devoted to lumber, salt, sugar, paper, rubber, leather and one or two other subjects. He has not attempted to discuss each subject exhaustively, but rather to present the essential facts regarding each of these industries in language which the laymen can understand.

To rubber he has devoted thirty-four pages, and must be complimented on the amount of information which he has embodied in that space. He has done his work carefully and has evidently resorted to many sources of information. If he makes an occasional slip, as when he states that every ton of rubber exported from the Amazon valley costs a human life (which would amount to about 40,000 lives each year), this does not seriously impair the general accuracy of the chapter.

He treats of rubber historically, botanically and chemically. He devotes a number of pages to the enumeration of the various kinds of rubber and the localities in which they grow, and speaks of the great extent to which the planting of rubber has now been carried, estimating that in the year 1912 9,000,000 rubber trees will come into bearing in the Middle East, an estimate which is undoubtedly conservative.

He goes quite exhaustively into the subject of coagulating rubber, describing the different methods found necessary for the different kinds, from the process of curing in the smoke of palm nuts, used along the Amazon valley, to the methods employed in the coagulating of *Castilloa* latex and other varieties. His description of the guayule industry is interesting and in the main accurate. Just how long it will require to get a profitable product from the planted guayule shrub is a mooted question. He places the period at about fifteen years.

The subject of reclaimed rubber is gone into quite fully, his estimate of the amount of rubber reclaimed in a year in this country being placed at 50,000,000 pounds.

OFFICIAL REPORT OF STATE OF PARÁ FOR 1910.

In his lengthy and detailed report (just to hand) Dr. José Antonio Luiz Coelho, Secretary of the Treasury, has compiled full statistical information as to the production, imports and exports of the State of Pará. Special prominence is given to the subject of rubber. This work, replete with facts, both of general and special interest, will be fully reviewed in the next issue of THE INDIA RUBBER WORLD.

News of the American Rubber Trade.

BOSTON WOVEN HOSE AND RUBBER CO.

THE Boston Woven Hose and Rubber Co. have filed with the secretary of state of Massachusetts a statement of their financial condition, as required by the statutes, for their business year ending August 31, 1911, the details of which are reproduced below, in comparison with which are given also the figures for the two preceding years:

	ASSETS.		
	1909.	1910.	1911.
Patents	\$1.00	\$1.00	\$1.00
Land and buildings....	825,435.97	800,000.00	811,919.02
Machinery and tools....	562,340.97	450,000.00	414,179.78
Cash	403,168.00	96,428.24	206,317.47
Accounts receivable....	468,518.90	553,922.90	469,415.48
Office furniture	1.00	1.00	1.00
Merchandise	665,948.96	756,283.51	755,150.55
Total	\$2,925,414.80	\$2,656,636.65	\$2,656,984.30
	LIABILITIES.		
	1909.	1910.	1911.
Capital stock, common..	\$750,000.00	\$1,515,000.00	\$1,529,500.00
Capital stock, preferred.	750,000.00		
Loans	455,000.00	85,000.00	.....
Accounts payable	47,789.20	57,902.71	50,622.72
Accrued wages	8,456.80	11,463.26	.....
Guarantee account.....	.....	87,270.68	1,076,861.58
Surplus	914,168.80	900,000.00	
Total	\$2,925,414.80	\$2,656,636.65	\$2,656,984.30

The directors of the Boston Woven Hose & Rubber Co. have declared a semi-annual dividend of three dollars (\$3.00) per share on the preferred stock and a quarterly dividend of two dollars and a half (\$2.50) per share on the common stock, payable December 15, 1911, to stockholders of record December 5, 1911.

STANDARD RUBBER AND CABLE CO.

At a recent meeting of the stockholders of the Standard Rubber and Cable Co., held at the office of the company in Bridgeport, Connecticut, it was voted to increase the capital stock from \$50,000 to \$250,000. The following officers were elected:

President and treasurer—William M. Doucette,
Vice-president—Peter A. Thorp,
Secretary—Alexander L. DeLaney.

It was proposed also to install further machinery and to take up in the near future the manufacture of automobile tires and tubes. The company declared a 5 per cent. dividend on the first year's business at a meeting of its directors held on October 27.

THE NEW S. M. B. RUBBER CO.

The S. M. B. Rubber Co. was organized November 22 under the laws of the state of New York, with a capital of \$150,000, for the manufacture of rubberized fabrics for the dress shield and raincoat manufacturing trade and also for the manufacture of rubber clothing. The factory will be located in Naugatuck, Connecticut. The officers of the company are as follows:

President—Arthur C. Squires, who will also act as factory manager.
Treasurer and General Sales Manager—T. F. McCarthy.
Secretary—Harry Boardman.

The name of the company, it will be noticed, is made up of the initials of these three officers. Of the \$150,000 capital, \$50,000 was subscribed by citizens of Naugatuck and \$100,000 by New York capitalists. The company hopes later to go into the manufacture of automobile tires. Mr. Squires says that there is a great abundance of business already pledged to the company. The building of the factory will proceed at once, and the officers hope to have it in running order within three months' time.

THE INTERCONTINENTAL RUBBER CO. INCREASES ITS DIRECTORS.

The board of directors of the Intercontinental Rubber Co. has been increased from twelve to fourteen, and William C. Potter, formerly general representative in Mexico of the American Smelting and Refining Company, and William F. Sheehan, have been elected to the directorate. Mr. Potter has also been made president. He is the first to serve in that capacity, although the company has been organized for several years.

RUBBER RECLAIMERS' CLUB ELECTS OFFICERS.

At the annual meeting of the Rubber Reclaimers' Club, held on November 9, at the Hotel Belmont, New York, the following officers were elected for the ensuing year:

President—F. H. Appleton,
Treasurer—R. W. Seabury,
Secretary—J. A. Norman.

Incidentally at the meeting a very fine lunch was served and the occasion was greatly enjoyed by those present.

DIAMOND RUBBER CO.

On Tuesday, October 27, The Diamond Rubber Co. held its annual meeting of stockholders. The regular quarterly dividend of 3½ per cent was declared, and in addition an extra dividend of 2½ per cent. The following board of directors was elected: F. A. Hardy, A. H. Marks, W. B. Miller, A. H. Noah, O. C. Barber, R. C. Lake, Guy E. Norwood. The officers of the board of directors are as follows: F. A. Hardy, president; A. H. Marks, vice-president and general manager; W. B. Miller, secretary; A. H. Noah, treasurer, and Guy E. Norwood, assistant treasurer.

AMERICAN CHEMICAL SOCIETY OFFICERS.

Charles L. Parsons, secretary of the American Chemical Society, has distributed blank ballots to the members of that society for the nomination of candidates for president for the year 1912 and also for four councilors to serve for three years beginning January 10, 1912. The present incumbents of these offices are as follows: President, Alexander Smith; councilors, W. Lash Miller, C. H. Herty, S. W. Parr, W. H. Walker. Of these all are eligible, as no one has served the constitutional limit of two consecutive years, but President Smith insists that he cannot accept a renomination.

In the division of Chemistry of India Rubber, D. A. Cutler, of the Rubber Goods Manufacturing Co., No. 42 Broadway, New York, is chairman, and Dr. F. J. Maywald, No. 89 Pine street, New York, secretary.

THE BLUE RIBBON RUBBER CAT.

The Industrial and Educational Exposition recently held in Boston was not primarily intended for the exploitation of fancy stock, but the Foster Rubber Co. at the conclusion of the exposition received from the other exhibitors a blue ribbon bearing the inscription, "Foster Rubber Co.; Big Black Cat. Award of Merit." This was an unexpected but eminently proper recognition of the large black cat, fully as large as a man, that used to perambulate around the exposition floor every evening, blinking his huge eyes—that suspiciously resembled electric lights—at the admiring throng.

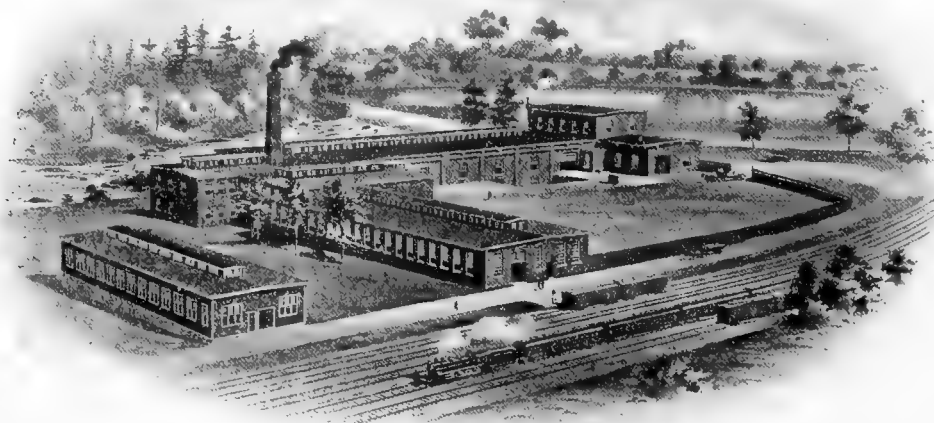
This impressive animal gained such celebrity that one of the Boston hotels borrowed him for Hallowe'en night for the purpose of having him disport himself in the various banquet rooms that were in use on that occasion. He made a great hit with the Hallowe'eners.

THE MONATIQUOT RUBBER CO.

The plant of the Monatiquot Rubber Co., at South Braintree, Massachusetts, is working up to its full capacity, in spite of the recent additions to its buildings and equipment. This mill is advantageously located twelve miles from Boston, on the Fall River branch of the New York, New Haven & Hartford Railroad. A thousand-foot siding furnishes ideal shipping and receiving facilities.

The mill stands on the left bank of the Monatiquot River, and from the falls at this point the company utilizes a water power which, in addition to its double steam equipment, gives it over 1,200 horse-power. The company generates its own electric current for lighting, etc.

The Monatiquot River plays an important part in the manufacture of "Monatiquot" and "Squantum" brands of "Naturized Rubber," since its water has been shown by analysis to be remarkably soft and pure, free from solids held in solution. In washing the rubber in process of reclamation, this water has been found to possess remarkable solvent properties, effectively breaking down and carrying off dirt and mineral substances which must be eliminated. The Monatiquot people say they find this a distinct advantage to them.



PLANT OF THE MONATIQUOT RUBBER CO.

To a visitor at this plant a number of things appear worthy of note. First, the completeness and convenient arrangement of equipment—the most approved types of rubber-working machinery—next, the modern, well-lighted concrete and brick buildings, not alone large enough for the present equipment, but with ample allowance for new machines as needed; last, the pains taken with the product in its manufacture. Thoroughness and careful attention to detail characterize every stage of the work. Years of experience and a close study of the science of rubber reclamation have borne fruit in this modern plant and its products "Monatiquot" and "Squantum" brands, "Naturized Rubber."

JAMES A. BRADEN, of the tire department of The Diamond Rubber Company (Akron, Ohio), remarks according to the Chicago "Inter-Ocean," that the motorist is mistaken who thinks tires are built solely of rubber and fabric. He has overlooked the principal material, which Mr. Braden goes on to indicate is brains. Undoubtedly he is right. Brains are a very essential ingredient in tire making, but at the same time some tire makers have been so generous in brains and so economical in rubber that the result, while psychologically interesting, has not been particularly successful in point of service.

TRADE NEWS NOTES.

The Fisk Rubber Co., Chicopee Falls, Massachusetts, resumed operations in November after a brief shutdown for the purpose of taking the annual inventory and for making some minor repairs.

The Jones Auto Exchange, on North Topeka avenue, Wichita, Kansas, has an exhibit in connection with its business that has attracted a great deal of attention. It is a rubber tree imported from South America standing 15 feet high, with a number of branches. It is described as follows: "The leaves are long and smooth and quite thick. The trunk is covered with a sort of fibrous bark and at the base are a number of tap roots above the surface of the soil in which the tree is growing, somewhat resembling a gigantic corn stalk in this particular."

It is reported that the manufacture of soling for outing shoes made of a mixture of rubber and asbestos, will soon be attempted on a fairly large scale in this country. This sort of soling has proved quite practical in England.

According to figures compiled by J. M. Gilbert, there are in the

neighborhood of 6,000 firms in the United States using motor trucks at the present time. As there are 20,000 trucks in operation, this makes an average of about three to each firm. The rapidity with which business men are discarding horses and adopting power driven vehicles in their delivery systems indicates, in Mr. Gilbert's opinion, that another year will find 50,000 trucks running.

The Goodyear Tire and Rubber Co. has remodeled its western branches, making them all uniform in furniture, fixtures, decorations and in character of illumination.

The Remington Tire and Rubber Co., Mansfield, Ohio, has been adjudicated bankrupt, and the first meeting of its creditors was held in Mansfield on November 25.

The factory of the Mercer Rubber Co. (Trenton, New Jersey), has recently been extensively improved in the way of installing new machinery. The company is well known as manufacturing all kinds of mechanical rubber goods, hose, packing, belting, moulded goods, tubing, valves and gaskets. Its product will be handled by the recently incorporated Mercer Rubber Company of Pennsylvania, located in Pittsburgh, Pennsylvania.

COLONEL COLT AND THE INDUSTRIAL TRUST CO.

Colonel Samuel P. Colt, president of the United States Rubber Co., has issued a circular for proxies to be used at the annual meeting of stockholders of the Industrial Trust Co., Providence, Rhode Island, to be held January 16 next. Colonel Colt is now chairman of the board of directors of that company and was for many years its president, giving up that position two or three years ago at a time when his health necessitated the lessening of some of his business burdens. The Industrial Trust Co. was created by Colonel Colt and reached its present highly successful condition very largely through his ability. It would seem to be only right, therefore, that he should resume control of this institution now that his health will permit him to take on these additional duties.

TRADE NEWS NOTES.

The United States Tire Co. have just placed on the market a new tire called the United States Standard Tire (Demountable). The distinguishing characteristic of this tire lies in the fact that by its use both single and dual tires can be changed without removing the wheel from the truck. This demountable feature is rendered possible by making the inside diameter of the tire band three-eighths of an inch larger than the outside band of the wheel, which gives a clearance between the tire band and the wheel band of three-sixteenths of an inch. Into this space wedges are forced, which are part of the flanges. The tire itself is built on a steel band with a layer of hard rubber between the band and the soft rubber tread.

The American Rim Co. has just opened quite extensive quarters at No. 250 West 54th street, New York, and intends to carry on an active campaign in marketing the Lambert Rim, which is claimed to have some remarkable demountable and quick-detachable features.

The Diamond Rubber Co., Akron, Ohio, has received a letter from a user of diamond tires, who says that his two front tires have passed the 7,000-mile mark and still hold the original air, which is certainly not a discreditable record.

Hood Rubber Co., Boston, Massachusetts, paid its regular quarterly dividend of $1\frac{3}{4}$ per cent. on its preferred stock on November 1.

The Jonesboro Rubber Co., whose factory is located in Jonesboro, Indiana, is said to be making preparations to resume operation, after having been shut down.

It is reported that the Banner Rubber Co., St. Louis, Missouri, has filed an application to increase its capital stock from \$100,000 to \$400,000, 3,000 shares of preferred and 1,000 shares of common stock. An officer of the company explains that the increase is to enable the company to engage in the manufacture of rubber boots and shoes and automobile tires on a larger scale.

The Bridgeport Elastic Web Co., Bridgeport, Connecticut, has filed a certificate of a change of location from Bridgeport to Mansfield, Ohio.

There are rumors, coming from sundry quarters, that a company has been formed in Paris, capitalized at \$500,000, for the purpose of manufacturing synthetic rubber from turpentine oil.

The United States Tire Co. has just issued a twenty-four-page pamphlet, very tastefully printed in colors, entitled, "Where Bicycle Tires Come From." The story is intended for juvenile readers. It begins in the Amazon jungle and describes how the trees are tapped, latex collected, coagulated, and the crude rubber shipped to this country. It then follows its course through the various factory processes, until the tires are completed and ready for the bicycle. It is generously illustrated with cuts made from photographs showing all the different stages mentioned in the story, and has a cover that will attract the eyes of the young people.

The Fisk Rubber Co., of Chicopee Falls, Massachusetts, is establishing a branch at No. 1207 Bedford avenue, Brooklyn, New York. Three other branches are being established, located as follows: No. 814 Main street, Cincinnati, Ohio; No. 5933 Baum street, Pittsburgh, Pennsylvania; No. 101 East Broadway, Butte, Montana.

The National India Rubber Co., Bristol, Rhode Island, is running on a full-time schedule, the mills being in operation for ten hours a day for the full week, with the expectation of continuing this schedule through the winter. It employs about 900 operatives.

Theodore Hofeller & Co. (Buffalo, New York), sends out a monthly calendar of convenient size and tasteful design, in the corner of which is to be found this statement, "Largest dealers in old rubber in the world."

The St. Louis branch of the Goodyear Tire and Rubber Co. has moved from its former quarters in Olive street to its new location on Locust street, near Nineteenth. The new building is finely equipped for the display and distribution of tires.

The Bundy Steam Trap, a device familiar to a large number of rubber manufacturers and favorably regarded by many, is now being handled by its manufacturers, the Nashua Machine Co., with Boston offices at No. 127 Federal street.

The Manufactured Rubber Co. declared a regular quarterly dividend of $1\frac{1}{2}$ per cent. on preferred stock, payable December 1 to stock of record November 25.

The Interstate Rubber Co., of New York City, with a factory for the manufacture of rubberized raincoats and autocoats in South Norwalk, Connecticut, has recently purchased the plant of the Robert Kerr Bros., located in Springdale, Connecticut, to be used as an additional factory.

The B. & R. (Beebe & Richardson) Rubber Co. (North Brookfield, Massachusetts), has recently installed a new 250-horsepower boiler in its factory.

It is stated that the American Tire and Rubber Co., recently incorporated in Akron, Ohio, for the purpose of manufacturing inner tubes and repair stock, will be ready for business in about a month's time.

The E. H. Clapp Rubber Co., Boston, Massachusetts, have secured for a western representative Mr. J. A. Kendall, who has offices in the Garfield building, Cleveland, Ohio. Mr. Kendall is well known in crude rubber and reclaiming lines, and both he and the company are to be congratulated on the arrangement.

The stockholders of the Miller Rubber Co., Akron, Ohio, have been called to attend a special meeting to be held on December 15, to vote on a proposed increase of the company's capital stock from \$500,000 to \$1,000,000.

PERSONAL MENTION.

Frederick T. Sloan has resigned the position which he held with the National India Rubber Co. (Bristol, Rhode Island), for which he traveled the territory of Massachusetts, Rhode Island and Connecticut, and has accepted the position of manager of the rubber department of the Phoenix-Hermetic Co. (Chicago).

Charles B. Whittelsey, of the Hartford Rubber Works Co. (Hartford, Connecticut), is a member of the truck standards division of the committee appointed by the Society of Automobile Engineers for standardizing motor truck wheels and tires.

Paul J. Valentine, chief clerk in the footwear sales departments of the Canadian Consolidated Rubber Co., Ltd., Montreal, was recently presented with a purse of gold by his fellow employees on the occasion of his approaching wedding.

Judge William H. Moore, director of the United States Rubber Co., took twenty-two blue ribbons at the horse show, held the latter part of November in New York.

AN AERONAUTIC SHOW.

The Aero Club of America is a decidedly live organization. At its annual meeting, held on November 13, in its clubhouse at 41st street and Madison avenue, New York, it was stated that a comprehensive aeronautic show would be held at the Grand Central Palace, in New York, from May 9 to 20, 1912. The club also has under consideration an aeronautic competition on a very large scale. The club has grown rapidly during the past year, the membership increasing from 320 to 540. There are now 24 clubs affiliated with it. At this meeting a new class of membership was added, for commissioned officers of the army and navy, and it was decided to increase the resident membership to 750. The initiation fee for the non-resident member was reduced from \$50 to \$25, only those residing more than fifty miles from New York being eligible to this list. The annual election of officers resulted as follows:

Allan A. Ryan declined re-election to the presidency and Robert J. Collier was elected to succeed him. Resolutions of thanks were passed, eulogizing the services of Mr. Ryan. In the other offices James A. Blair, Jr., succeeds Cortlandt Field Bishop as first vice-president, Major Samuel Reber, U. S. A., becomes second vice-president in place of Dave Hennen Morris, and Harold F. McCormick, of Chicago, succeeds Mr. Blair as third vice-president. For the office of additional vice-president Henry A. Wise-Wood was elected.

E. G. STEARNS GOES WITH BANNER RUBBER CO.

E. G. Stearns, who has been connected with the United States Rubber Co. ever since its formation, for the last two years as its Chicago agent, and before that time as manager of its Chicago branch store, has left that company to go with the Banner Rubber Co., of St. Louis. This company is to be reorganized, and Mr. Stearns, as president of the newly formed Stearns Rubber Co., Chicago, will have charge of the sales of the Banner goods. Walter F. Roth is associated with him as secretary and treasurer.

C. H. OAKLEY ACQUIRES THE ESSEX RUBBER CO.

Clifford H. Oakley, of Trenton, who for some time has owned the majority of the stock of the Essex Rubber Co., has now acquired the entire capital stock. The executive staff of the company remains unchanged and Mr. Oakley continues as president and A. E. Moon as vice-president.

Mr. Oakley has been active in the rubber manufacturing business for the past twenty years, entering the service of the Cleveland Rubber Co. as a mechanical engineer in 1892 and later became its superintendent.

For eight years Mr. Oakley was associated with the Cleveland Rubber Co. In the year 1900 he removed to Trenton becoming connected with the Grieb Rubber Co. In his seven years' association with that concern, as general manager and secretary, Mr. Oakley greatly extended the business of the company and then brought about the formation of the Ajax-Grieb Co.

Four years ago Mr. Oakley retired from the Ajax-Grieb Co. and formed the Essex Rubber Co. This concern manufactures numerous rubber articles and engineering supplies, including rubber specialties for the shoe trade, automobile accessories, sporting goods, asbestos and rubber packings, tubing, valves, horseshoe pads and the new well-known Essex rubber rug.

The business, under the personal direction of Mr. Oakley, has grown rapidly and at the present time steps are being taken toward providing more adequate facilities in the matter of both land and buildings for the company.

The November number of *The Auto Era*, published by the Winton Motor Car Co. (Cleveland, Ohio), contains, together with a great variety of interesting matter relative to motors, a paragraph on the shifting of tires, advising the occasional changing of tires from wheels on one side of a truck to the opposite wheels, so that the wear may be equalized and maximum service be secured.

PERSONAL MENTION.

Apropos of a recent New York Supreme Court decision regarding the liability of the directors of corporations, absolving them from responsibility for losses "in small every day transactions," it is interesting to note that the "Directory of Directors in the City of New York" contains the names of several United States Rubber Co. directors who are on the directorate of a large number of corporations. Among them are Colonel Samuel P. Colt, a director in 30 corporations; Francis L. Hine, a director in 26; W. H. Truesdale, a director in 33, and Lester Leland, a director in 34.

R. J. Wilkie, who has been treasurer and manager of the Wilkie Rubber Manufacturing Co., has resigned from both positions. The company has been reorganized, and in addition to the manufacture of hard rubber and moulded goods, has recently added druggists' sundries and soft rubber and rubber covered rolls.

J. S. Waddell, treasurer of the Springfield Tire & Rubber Co., Portland street, Boston, Massachusetts, started on November 6 on a long trip, covering the Pacific coast and the Hawaiian Islands, with the intention of establishing a number of agencies for the distribution of the company's output.

Mrs. Francis Burroughs Mulford, wife of Timothy Mulford, for many years manager of the Goodyear Rubber Co., Kansas City, Missouri, died recently at her home in that city of pneumonia, which followed close upon a long siege of typhoid fever. Mrs. Mulford was born in Brooklyn, New York, in 1851.

Mrs. S. D. Baldwin, wife of the treasurer and general manager of the Cincinnati Rubber Manufacturing Co., died on Sunday evening, November 19, after a very brief illness.

WORSHIPFUL MASTER W. H. PALMER.

WILLIAM H. PALMER, advertising manager of the United States Rubber Co., has been signally honored by his fellow Masons at his old home in Malden, Massachusetts. The Malden *News* of November 3 contains the following paragraph:

"Mt. Vernon Lodge of Masons elected its twenty-sixth worshipful master last night when William H. Palmer took the chair. During the past few years he has been a resident of New York City, as he holds a responsible position with the United States Rubber Co. His devotion to his lodge work, however, has never waned and he makes special trips to Malden to be present at meetings. He has served in the Common Council of Malden and had he remained here would have continued to be honored."

Which goes to show that the good don't all die young.

COMMODORE BENEDICT AGAIN TO VISIT THE AMAZON.

COMMODORE E. C. BENEDICT, equally famous in the rubber industry and in yachting circles, is reported to have planned for another trip to the Amazon. He is said to have chartered the ocean-cruising steam yacht *Alvina*, owned by Thomas F. Cole. The yacht is 214 feet over all, and the commodore will, as usual, take a party of friends with him. He expects to have with him Colgate Hoyt, James McCutcheon, a few old yachting friends and, in addition, his daughter, Mrs. Harmon, whose husband is well known in aviation circles, and two or three of her friends. He expects to sail on December 15, going to the Amazon and as far up the river as Manaus.

This will be the commodore's third cruise to those waters. His first cruise, when he took a large number of rubber men, including several connected with the United States Rubber Co., occurring about six years ago on his own yacht *Virginia*, his second cruise taking place on the same yacht last winter, when he was accompanied by James B. Ford, vice-president of the United States Rubber Co.

NEW INCORPORATIONS.

AUTOMOBILE SUNDRIES Co., November 1, 1911, under the laws of New York; authorized capital \$10,000. Incorporators: George F. Merritt, 114 East 23rd street, Theo. M. Crisp, 80 Broadway, and John E. Waltz, 21 West 106th street, all of New York. Location of principal office, New York. To manufacture rubber tires, tubes, etc.

The Buffalo Tire Co., November 10, 1911, under the laws of New York; authorized capital \$500. Incorporators: Wm. Preiss, 160 Franklin street, Chas. H. Howe, and Alfred C. Bidwell, 234 North Division street, all of Buffalo, New York. Location of principal office, Buffalo. To manufacture "Bison" tires.

Central Tire Supply Co., November 1, 1911, under the laws of New York; authorized capital \$1,100. Incorporators: Max Wolper, 1911 Madison avenue, Martin C. Powers, 24 Locust street, and Bernard Halpert, 1911 Madison avenue, all of New York City. Location of principal office, New York City. To manufacture tires, etc.

D. & S. International Airless Tire Co., October 17, 1911, under the laws of New Jersey; authorized capital \$100,000. Incorporators: J. H. Nixon, 2246 Lehigh avenue, Philadelphia, Pennsylvania. Thomas B. Hall, 423 Market street, Camden, New Jersey; Irving Zimmerman, 4011 Baltimore avenue, Philadelphia, Pennsylvania. To manufacture tires.

John Danner Shoe Co., October 6, 1911, under the laws of New York; authorized capital \$25,000. Incorporators: John Danner, 668 Northampton street; Emil Baumgaertel, 697 Best street; and Anthony Danner, 1313 Jefferson street, all of Buffalo, New York. To manufacture boots and shoes.

The Diagonal Block Tire Co., October 30, 1911, under the laws of Ohio; authorized capital, \$25,000. Incorporators: J. A. Swinehart, W. R. Talbott and Frank R. Talbott. To manufacture rubber tires and other rubber goods, etc.

Frontier Tire & Rubber Co., October 26, 1911, under the laws of New York; authorized capital, \$250,000. Incorporators: George B. North, Howard M. Gill, and Wm. G. Dargan, all of Buffalo, New York. Location of principal office, Buffalo, New York.

Goodyear Rubber Goods and Manufacturing Co., November 2, 1911, under the laws of Illinois; authorized capital, \$2,500. Incorporators: George A. B. Pfuhl, Edward J. Ader, and Frederick W. Story. Location of principal office 30 West Lake street, Chicago, Illinois. The company was incorporated for the purpose of engaging in general sales, storage, etc., also manufacturing of articles in which rubber is used.

C. W. Haas Tire Seal Co., October 28, 1911, under the laws of Illinois; authorized capital, \$75,000. Incorporators: C. W. Haas, Richard C. Uckema, and Emmet C. May. Location of principal office, 310 North Jefferson street, Peoria, Illinois. To manufacture and deal in automobile tires, rubber goods and automobile accessories.

Higrade Auto Tire Sales Co., September 21, 1911, under the laws of New York; authorized capital, \$50,000. Incorporators: A. Foshay, Russell Goldman, both of 13 Park Row, New York; Helen Neubardt, 220 Roebling street, Brooklyn, New York. Location of principal office, New York. To manufacture rubber goods, etc.

Kelly-Racine Rubber Co., October 16, 1911, under the laws of Wisconsin; authorized capital, \$1,000,000. Incorporators: Martin J. Gillen, Mary E. Lunn, and Milton J. Knoblock, all of Racine. To buy, sell, and manufacture automobile tires, etc.

A. J. Maynard Co., October 18, 1911, under the laws of New York; authorized capital, \$2,000. Incorporators: Andrew J. Maynard, 615 Marcy avenue, Brooklyn, New York; David Detjen, Ridgefield Park, New Jersey, and Chas. Scheland, 249 Prospect place, Brooklyn, New York. Location of principal office, New York. To manufacture rubber goods.

National Rubber Co., September 28, 1911, under the laws of Missouri; authorized capital, \$20,000. Incorporators: Lewis Godlove and Eugene Swarzwald, both of St. Louis, Missouri. To manufacture rubber goods, etc.

National Spring Tire Co., November 7, 1911, under the laws of Illinois; authorized capital, \$125,000. Incorporators: Charles L. Sigman, Jr., Louis Valence and Chas. H. Jackson. To deal in automobile accessories.

The New England Wells Block Tire Co., October 18, 1911, under the laws of Connecticut; authorized capital, \$40,000. Incorporators: Frederick A. Wells, Mary F. Eckhardt and Arthur C. Veith. To deal in automobiles, etc.

The Nonoxidite Mfg. Co., November 3, 1911, under the laws of New York; authorized capital, \$150,000. Incorporators: Arthur Boomhower, 100 Fifth avenue, New York; Wm. B. Westerfield, 15 Exchange place, Jersey City, New Jersey, and Anna H. Litterfield, 100 Fifth avenue, New York. Location of principal office, New York. To manufacture rubber goods, etc.

The Northern Ohio Punctureless Tire Co., October 19, 1911, under the laws of Ohio; authorized capital, \$3,000. Incorporators: Frank E. Lewis and John J. Nieset. Location of principal office, Fremont, Ohio. To act as selling agents for the Dahl punctureless tire, of Minneapolis, and deal in all articles pertaining to automobiles and tires.

Racine Rubber Co., November 6, 1911, under the laws of Wisconsin; authorized capital, \$10,000. Incorporators: Martin J. Gillen, Mary E. Lunn and Milton J. Knoblock. To buy, sell and deal in crude rubber, etc.

The Royal Rubber Cement Co., October 13, 1911, under the laws of New York; authorized capital, \$2,000. Incorporators: Louis Sable, William and Isaac Greenberg, all of 280 Broadway, New York. Location of principal office, New York.

Stein Tire & Rubber Co., October 13, 1911, under the laws of New York; authorized capital, \$10,000. Incorporators: Clarence Mondy and John M. Scelsa, both of 15 William street, New York. Location of principal office, Highmount, New York. To manufacture tires and other rubber.

Suspended Pneumatic Tire Co., November 6, 1911, under the laws of New Jersey. Authorized capital, \$500,000. Incorporators: John Williamson, Harvey E. Randall and Charles H. Stewart, all of 164 Market street, Newark, New Jersey. The company has been incorporated to carry on the business of truckmen, draymen, etc.

Trautman Air-Rubber Tube Co., November 1, 1911, under the laws of New York. Authorized capital, \$100,000. Incorporators: Ira Trautman, 582 Second street; August V. Denis, 53 Berkeley Place, and Wm. G. Newhall, 157 S. Elliott Place, all of Brooklyn, New York. Location of principal office, Manhattan. To manufacture air rubber tubes, etc.

MR. ARMSTRONG WITH THE LOEWENTHAL CO.

Mr. H. G. Armstrong has associated himself with the Loewenthal Co. of New York, with branch offices in Boston, Akron and Chicago. Mr. Armstrong will act as their mill representative in the New England territory. He has had many years' experience in different departments of the rubber industry, having been connected for over 10 years with the United States Rubber Co., holding various important positions; acting at different times as their Baltimore agent, their Chicago agent, and later being associated with their selling department with headquarters in New York. When the late E. H. Paine was manager of sales of the United States Rubber Co. Mr. Armstrong was his efficient and highly esteemed assistant. He was extremely popular all through the footwear trade because of his unfailing courtesy and attractive personality. With his years of experience in the rubber trade, his wide acquaintance and exceptional popularity, he carries with him every assurance of success in his new position.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED OCTOBER 3, 1911.

- N**O. 1,004,582. Tire for vehicle wheels. William D. McNaul, Toledo, Ohio.
- 1,004,626. Tire for vehicles. Michael J. Cantor and Ernest Siegel, New York.
- 1,004,634. Hose appliance. Robert M. Dixon, East Orange, N. J., assignor to Safety Car Heating and Lighting Co. of New Jersey.
- 1,004,642. Rubber tire. George H. Gillette, New York.
- 1,004,658. Spring tire. Joseph M. Keller, Philadelphia, Pa.
- 1,004,717. Scrub apron. Elizabeth P. White, Salisbury, N. C.
- 1,004,788. Weather strip. Henry Higgin, assignor to The Higgin Manufacturing Co.—both of Newport, Ky.
- 1,004,820. Vulcanizing apparatus. Benjamin P. and Frank I. Remy, Anderson, Ind., assignors to The Remy Electric Co., Anderson, Ohio.
- 1,004,864. Vulcanizing press. Myles P. Fillingham, Ansonia, Conn., assignor to Birmingham Iron Foundry, Derby, Conn.
- 1,004,865. Art of vulcanizing. John R. Gammeter, assignor to The B. F. Goodrich Co.—both of Akron, Ohio.
- 1,004,867. Vehicle-tire. Samuel H. Gilson, assignor of one-half to Jay S. Milner—both of Salt Lake City, Utah.
- 1,004,895. Tire. De Witt Nelson, assignor to E. J. Phelps—both of Minneapolis, Minn.
- 1,004,897. Heel-fastener. Francis A. Nolan, St. Paul, Minn.
- 1,004,988. Vehicle-wheel. John Callan, Globe, Ariz.
- 1,005,001. Manufacture of chewing gum. James D. Darling, Philadelphia, Pa., assignor to Keystone Trading Co. of New Jersey.

Design.

- 41,817. Golf ball. William Pearce, Akron, Ohio.

Trade Mark.

- 56,913. Eberhard Faber, New York. The word *Ruby*. For rubber bands.

ISSUED OCTOBER 10, 1911.

- 1,005,123. Attachment for tire-inflating pumps. Henry K. Austin, Reading, Mass.
- 1,005,134. Flexible conduit. Howard H. Balliett, Pittsburgh, Pa.
- 1,005,256. Rubber boot and shoe. Herbert Capron Mason, Providence, R. I., assignor to Hood Rubber Co., Boston, Mass.
- 1,005,296. Dental suction plate. Jacob Petry, Pittsburgh, Pa.
- 1,005,326. Cushion tire. Phillip Schau, Kalamazoo, Mich.
- 1,005,356. Syringe. Judson R. Swift, New York.
- 1,005,377. Tire-armor. Henry J. Von der Lieth, New York.
- 1,005,470. Tire. Charles L. Rempe, Akron, Ohio.
- 1,005,473. Elastic wheel bearing. Gustav Rennerfelt, Scranton, Pa.
- 1,005,585. Cushion heel. William Vogt, New York.
- 1,005,589. Cushion tire. Milton J. Altland, Dillsburg, Pa.
- 1,005,624. Life-preserver. Anders Engström, Topeka, Kan.
- 1,005,690. Automobile tire pump. Frank E. Carlson, Chicago, Ill.
- 1,005,707. Elastic wheel for motor vehicles. William P. Hoopes, Milton, Pa.
- 1,005,787. Fabric package. George H. Sibley, assignor to Stephen J. Sibley—both of Springfield, Mass.

Trade Marks.

- 33,040. National India Rubber Co., Bristol, R. I. Company's name in diamond with anchor. For dental, medical and surgical appliances.
- 50,252. Arnold Otto Meyer, Hamburg, Germany. Photograph of Filipino patriot. For belting, hose machinery packing and non-metallic tires.
- 56,385. Wilhelm Muller, Fabrik zahnärztlicher Instrumente und Maschinen, Berlin, Germany. The letters *W. M.* outside a triangle. For dental, medical and surgical appliances.
- 57,388. La Favorite Rubber Manufacturing Co., Paterson, N. J. The word *Marvel*. For belting, hose, machinery packing and non-metallic tires.

ISSUED OCTOBER 17, 1911.

- 1,005,822. Spraying apparatus with pipe. Jefferson D. Ford, Maryville, Mo.
- 1,005,873. Tire protector. Charles R. Ragsdale, St. Louis, Mo.
- 1,005,891. Vehicle wheel. Martin C. Schwab, Chicago, Ill.
- 1,005,924. Eraser for ink, pigments and the like. Francis Henry Baldwin and William Graff, New York.
- 1,005,960. Pneumatic tire. Robert B. Gray, Port Carbon, Pa.
- 1,005,962. Non-pneumatic elastic tire for vehicle wheels. Oscar Grenier, Boulogne-on-the-Seine, France.
- 1,005,978. Truss. William Jones, Denver, Colo.
- 1,006,014. Elastic cord for garment supports. William Tully Sondley, Huntsville, Ala.
- 1,006,159. Pneumatic tire valve. William C. Wetherhold, Columbus, Ohio.
- 1,006,274. Process for the manufacture of rubber substitute. Nicholas Reif, Hanover, Germany.
- 1,006,376. Tire for wheels. Frank Gallagher, Ridgeway, Iowa.

Trade Mark.

- 49,759. I. B. Klemm Rubber Co., New York. The word *Glova*. For dress shields.

ISSUED OCTOBER 24, 1911.

- 1,006,465. Vehicle wheel and tire. Melville Clark, Chicago, Ill.
- 1,006,470. Exercising apparatus. Matthew Duffner, Pittsburgh, Pa.
- 1,006,570. Cover for pneumatic tires. Richard Latour, Menin, Belgium.
- 1,006,588. Gas-tube tip. Albert W. Nicholls, East Norwalk, Conn.
- 1,006,630. Wiping and rubbing device. Walter H. Clarke, Huntington Park, Cal.
- 1,006,640. Insulated air-pipe. Arthur Faget, San Francisco, Cal.
- 1,006,641. Fountain brush. Joel Barlow Fesler, New York.
- 1,006,665. Cushion tire. George H. Matteson, assignor of one-half to John M. Hayes—both of Toledo, Ohio.
- 1,006,671. Hose connection. Claus D. Myer, assignor to Simplex Hose Connection Co.—both of Jersey City, N. J.
- 1,006,712. Tire protector. Rudolph Aue, San Antonio, Texas.
- 1,006,759. Yieldable wheel. John Klatt, Blue Earth, Minn.
- 1,006,945. Eye-bathing mask. James D. Houston, Gage, Okla.
- 1,006,979. Dental suction plate. Carl Rauhe, Dusseldorf, Germany.
- 1,007,013. All-flexible rubber sink seal. Emily A. Sears, Brooklyn, N. Y.
- 1,007,015. Tire. Thomas J. Thatcher, assignor of one-third to Frank B. Thatcher, and one-third to James Gray—all of Detroit, Mich.
- 1,007,016. Head for rubber straining machines. James W. Weir, assignor to the Housatonic Machine & Tool Co.—both of Bridgeport, Conn.
- 1,007,018. Vehicle tire. Harry Wilson and Carl Guder, McKeesport, Pa.

Trade Marks.

- 54,217. Needham, Veall & Yzack, Ltd., Sheffield, England. A picture of a hunting horn. For cutlery, machetes and tools.
- 57,752. Imperial Rubber Co., New York. The word *Imperial*. For electrical apparatus, machines and supplies.
- 58,346. J. J. Beyerle Mfg. Co., New York. The words *The Puritan*. For armpit shields.

ISSUED OCTOBER 31, 1911.

- 1,007,064. Pneumatic tire for wheels. Henry N. Carragher, Fall River, Mass.
- 1,007,087. Resilient wheel. James S. Gammon, Oklahoma, Okla.
- 1,007,296. Rubber gear for water meters. William R. Larrabee, assignor to Union Water Meter Co.—both of Worcester, Mass.
- 1,007,326. Hose-coupling. William T. Boyd, Ottumwa, Iowa.
- 1,007,375. Resilient wheel. Frank Morris, Omaha, Neb.
- 1,007,394. Spare-tire holder. Abram L. Shutter, West Haven, Conn.
- 1,007,434. Apparatus for forming figured treads on tires. Louis Peter Destrubats, Trenton, N. J.
- 1,007,436. Vehicle wheel. William Enright, Detroit, Mich.
- 1,007,492. Fountain brush. Peter B. Ruch, University Place, Nebraska.
- 1,007,640. Tire tool. James L. Butler, Akron, Ohio.
- 1,007,657. Nozzle-holder. Frederick W. Freund, Santa Monica, Cal.
- 1,007,658. Lawn sprinkler. Lewen R. Nelson, Peoria, assignor of one-half to Central Brass & Stamping Co.—both of Illinois.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1910.

*Denotes Patents for American Inventions.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, OCTOBER 4, 1911.]

- 14,040 (1910). Production of isoprene. A. Heinemann, London.
- 14,041 (1910). Production of caoutchouc by polymerizing isoprene. A. Heinemann, London.
- 14,240 (1910). Improvements in vacuum cleaning sliders. W. T. Robertshaw, Manchester.
- 14,251 (1910). Process of devulcanizing rubber. L. A. M. Banchieri, Milan, Italy.
- 14,257 (1910). Vulcanization of rubber in tires. W. G. Boonzaier, Carnarvon, Cape Colony, South Africa.
- 14,292 (1910). Rubber ball in siphons. L. Wainwright, Folkestone.
- 14,376 (1910). Air-tight soother in teething pads. E. J. Rainsford and G. A. Laughton, Birmingham.
- *14,379 (1910). Treadpiece for footwear and crutches. P. W. Pratt, Boston, Mass.
- 14,441 (1910). Improvements in rubber heel pads. W. A. Brigg and J. Helliwell, Keighley, Yorkshire.
- 14,469 (1910). Protective cover for pneumatic tires. L. Petz, Gyor, Hungary.
- 14,515 (1910). Elastically supported frictional massage appliances. W. Otto, Berlin, Germany.
- 14,519 (1910). Improvements in tread bands of tires. C. Burnett, Durham.

- 14,547 (1910). Flexible diaphragm for tire valves. H. R. Heys, Blackpool, and W. Aked, St. Anne's-on-Sea.
14,557 (1910). Strengthening of syringe bulbs. A. M. Frlstein, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, OCTOBER 11, 1911.]

- 14,571 (1910). Rubber sponge on safety razors. P. Shortin, Ingatestone, Essex.
14,673 (1910). Rubber packing pieces for wind screens of road vehicles. W. L. Tollute, Rossett, Denbighshire.
14,837 (1910). Covers for vehicle tires. J. Doherty and W. J. Robbins, Wellington, New Zealand.
15,000 (1910). Improved air chambers in elastic tire. L. A. Garchey, Paris, France.
*15,039 (1910). Use of rubber in securing leather to staking machine. M. Staudarter, Philadelphia, Pa.
15,141 (1910). Rubber buffer for springs. C. H. Gray, Silvertown, Essex.
15,158 (1910). Rubber layer in horseshoes. H. Frey, Driesbach, near Buren, Switzerland.
15,163 (1910). Rubber-proofed canvas case for footballs and other balls. Orb Works, Cowley, and J. Turner, Uxbridge—both in Middlesex.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, OCTOBER 18, 1911.]

- 2,535 (1910). Soles, heels, etc., from layers of rubber-treated fabric, moulded and vulcanized. L. S. McGiehan, London.
15,228 (1910). Adjustable blade for rubber-tapping knives. Wynn, Timmins & Co., and H. S. Wynn—both of Birmingham.
15,254 (1910). Production of artificial rubber from divinyl. Farbenfabriken vorm. F. Bayer & Co., Elberfeld, Germany.
*15,270 (1910). Anti-skidding appliance. R. A. Moore, 29 Broadway, New York.
15,327 (1910). Use of rubber to make bottles in wire brushes springy. H. T. Mesbury, London.
15,354 (1910). Use of rubber rings in toy guns. P. R. Shrapnel, Coventry.
15,364 (1910). Jointless ankle-strap for rubber overshoes. North British Rubber Co. and S. F. Roberts—both in Edinburgh, Scotland.
15,416 (1910). Improvement in backing of rubber cushions of billiard tables. F. A. Alcock, Melbourne.
15,419 (1910). Rubber stoppers for paste containers. E. A. Wilsch, La Garonne Colombes, France.
*15,448 (1910). Rubber gasket for telephone mouthpieces. J. B. O'Hara, Philadelphia, Pa.
15,474 (1910). Projections in tread band surfaces of tires. J. C. Barker, Leeds.
15,540 (1910). Rubber tread pads for heels. J. V. E. A. Royat, Puy-de-Dome, France.
15,611 (1910). Plocks and plates in pneumatic tires. J. S. and T. B. Richardson, Leeds.
15,738 (1910). Non-refillable bottle with rubber sleeve. L. Dorechel, Kleinthiemig, near Grossenhain, Saxony.
15,745 (1910). Improvements in tread bands of tires. A. Ascheri, Paris, France.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, OCTOBER 25, 1911.]

- 15,776 (1910). Improvements in the manufacture of solid tires. S. G. Board, Manchester.
15,792 (1910). Vulcanized cable covering. J. Bowyer and Anchor Cable Co., Leigh, Lancashire.
15,797 (1910). Composition for waterproofing leather, including a solution of Pará rubber. F. Fölsch, Wernigerode, Germany.
15,803 (1910). Motor cycle belts with rubber straps. W. Pollin, Spalding, Lincolnshire.
15,832 (1910). Rubber washers in spring wheels. H. G. Hugon, Calais, France.
15,933 (1910). Rubber cap for electric incandescent lamps. R. F. Russell, London, and E. T. Hutson, Westcliff-on-Sea.
*15,966 (1910). Improvements in cushion tires. M. C. Overman, 391 West End avenue, New York.
16,046 (1910). Outer tire jackets of rubber tape. A. Vandervoort, Belleville, Ontario, Canada.
*16,070 (1910). Apparatus for moulding a number of rubber shoes. M. C. Clark, La Crosse, Wisconsin.
16,079 (1910). Puncture-filling compositions. R. Adey, Hanley.
16,170 (1910). Use of rubber in bolt channels of wheels. G. F. Powell, Bath.
16,291 (1910). Insoles for rubber boots and shoes. M. M. Dessan, London.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

- 427,286 (March 7, 1911). Perkin, Weizmann, Mathews & Strange. Improvements in synthetic production of rubber and of an intermediate product.
427,299 (March 14). Farbenfabriken vorm. Friedr. Bayer & Cie. Process for manufacture of products resembling vulcanized rubber.
427,411 (March 15). R. Rhoné. Wheel with elastic tire.
427,383 (May 26, 1910). L. Pinkala. Press for moulding plastic substances.
427,519 (March 18, 1911). P. V. Reynier. Improvements in pneumatic tires for automobiles and other vehicles.
427,533 (March 21). S. Cooke and W. C. Davis. Process and method for vulcanizing rubber heels and similar articles.
427,625 (March 22). Emile Baumgarten. Elastic fabric for suspenders.

- 427,701 (March 24). A. J. Depond. Dismountable rim for pneumatic tires.
427,871 (March 29). A. W. Audibert. Air chamber with multiple compartments.
427,924 (March 10). T. F. Baldwin. Protector for vehicle tires.
428,154 (April 6). W. Kaps. Elastic fabric.
428,039 (March 28). A. Poizat. Covered tire for automobiles and other vehicles.
428,053 (April 3). C. Burnett. Improvements in covers of elastic tires.
428,128 (April 8). L. Mousset fils. Elastic tire for wheels of motor trucks and other heavy vehicles.
427,879 (March 29). R. Derry. Improvements in or relating to the treatment of rubber.
428,168 (April 6). J. Dodon. Wrapper or counter-wrapper for pneumatic tires.
428,433 (April 13). Rubber Substitute Co. (1910) Limited. Process for the manufacture of artificial rubber, rubber thus obtained and articles made of the same.
428,491 (April 14). G. Clavian. Protector for pneumatic tires.
428,553 (March 17). W. Haseloff. Anti-skid appliance for automobiles.
428,602 (April 15). J. S. Stocks & G. W. Bell. Improvements in the manufacture of wrappers of pneumatic tires.
428,628 (June 25, 1910). L. A. Garchey. Tire for vehicle wheels.
428,648 (April 18, 1911). E. E. Hoff. Improvements in elastic tires.
428,701 (April 19). H. Hamet & L. Momier. Process for coagulating the rubber contained in the latex of rubber-producing plants.

[NOTE. Printed copies of specifications of French patents can be obtained from R. Robet, Ingenieur-Conseil, 16 avenue de Villier, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

- 240,074 (from December 6, 1910). Dr. Oswald Silberrad, Buckhurst Hill, England. Extraction of isoprene from oil of turpentine.
240,127/8 (from July 24, 1910, and December 21, 1910). W. Hiestrich Nachf, Hamburg. Extraction of rubber and like substances.
240,249 (from September 24, 1910). Hans Stephan, Falkensteinstrasse 49, Berlin. Manufacture of slabs from masses of caseine.
240,428 (from June 28, 1910). Georges Desson, Paris. Pneumatic tires with interchangeable treads.
240,501 (from June 12, 1910). Jacob Kaufmann, Kaiser-Allee 172, Berlin-Wilmersdorf. Insertion of metal in masses of celluloid, hard rubber, etc.
240,904 (from May 2, 1911). Supplementary to above.
240,927 (from July 5, 1910). Fritz Loewi, Kronenstrasse, 61/63 Berlin. Manufacture of leathery compositions out of leather waste and chopped-up waste rubber.
240,951 (from December 15, 1909). Dr. Edward van den Kerkhoff, Dusseldorf. Production of masses resembling gutta-percha.
240,856 (from March 2, 1911). Walter Redlich, Albechstr. 2 Dresden. Packing for movable metal packings.
240,816 (from September 29, 1910). Oscar Grenier, Boulogne-sur-Seine, France. Elastic tire with surrounding reinforced layer.
240,781 (from November 25, 1910). Rodolph Reizer and A. W. Bernhardt, Paris. Toy aeroplane with rubber motor.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta-percha from the United States for the month of September, 1911, and for the first nine months of five calendar years:

Months.	Belting Packing and Hose.	Boots and Shoes.	All Other Rubber.	Total.
September, 1911....	\$219,389	\$173,783	\$587,276	\$980,448
January-August	1,482,052	1,175,597	4,815,708	7,473,357
Total, 1911.....	\$1,701,441	\$1,349,380	\$5,402,984	\$8,453,805
Total, 1910.....	1,592,594	1,664,215	4,258,968	7,515,777
Total, 1909.....	1,301,497	1,127,806	3,059,146	5,488,449
Total, 1908.....	926,566	1,043,528	2,629,927	4,600,021
Total, 1907.....	1,051,903	1,213,992	2,997,815	5,263,710

The above heading, "All Other Rubber" for the month of September, 1911, and for the first nine months of the current year, includes the following details relating to tires:

Months.	For Automobiles.	All Other.	Total.
September, 1911.....	\$226,451	\$41,456	\$267,907
January-August	1,715,322	395,745	2,111,067
Total, 1911.....	\$1,941,773	\$437,201	\$2,378,974

New Rubber Goods in the Market.

"SOFT-SPOTS" HEEL CUSHIONS.

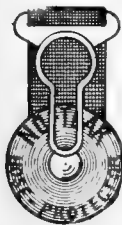
A SIMPLE, hygienic pneumatic heel cushion for shoes is called "Soft Spots." It differs from the ordinary rubber heel, both in construction and size. It is worn *inside* of the shoe, being caught down by a small artist's tack which is glued to the under surface. This cushioned heel is not more than one-eighth of an inch in thickness and is composed of many small pneumatic air cushions or globules hermetically sealed, with ventilating



holes between the cushions. The upper side of the cushion, and the one upon which the heel rests is of thin leather and prevents artificial heating or perspiration. These cushioned heels are easily slipped into any shoe, and come in all sizes for men, women and children. [Byrne's Pneumatic Heel Cushions. International Specialty Co., San Francisco, California.]

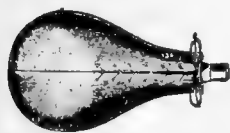
NO-TEAR HOSE PROTECTOR.

To overcome the dropping of stitches and the tearing of thin hose by the ordinary supporter, the "No-Tear" Hose Protector Company, of Portland, Maine, have put on the market a thin rubber disc with a hole in the center, which snaps onto the garter stud when in use. This disc need never be removed, except for cleaning, which is done with ordinary soap and water. This disc will fit any garter, no matter what the size, and is so light in weight that it is not a noticeable addition, except as it preserves the life of the stocking. These protectors are very inexpensive, and come in sets of six on a card, giving full instructions for use.



CLOTH COVER FOR MOTOR HORN BULBS.

Our English friends have a keener sense of conservation than we have on this side of the water. In illustration of that excellent trait here is a cut of the "Duco" horn with cover, which is of cloth and intended to protect the rubber bulb from the elements. A good idea, but one that would probably not be widely adopted in this country. [Brown Brothers, Limited, London, England.]

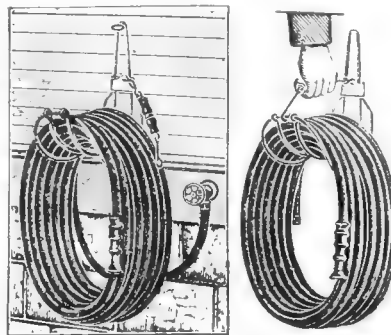


RUBBERIZED SCHOOL BAGS.

A fad among the school children of Boston is a waterproofed bag for carrying their school books. These bags are about eighteen inches deep and fourteen inches wide, and are very inexpensive. They are made of a rubberized material, very light but durable, and come in black only.

A PRACTICAL HOSE RACK.

This hose rack is so shaped as to keep the hose in coil, and it cannot become bent and break. The rack is fastened to the wall just above the faucet, or by attaching the flexible handle at the back, with the front of the rack it may be easily carried. The rack is galvanized and will hold 100 feet of $\frac{3}{4}$ -inch hose. If all the hose is not needed when watering, the rest may be left as it is; the water will run through just the same. This rack can also be used in stores to display garden hose, as it is rather



HOSE RACK AND CARRIER.

ornamental. [The Specialty Manufacturing Co., Anthony Park, Minnesota.]

A PORTABLE DOOR HOLDER.

An ingenious and very practical portable door holder is here shown. It is made of steel, heavily riveted, with a strong spring, and padded with the best of rubber. It weighs only seven ounces, and so is easily carried about. It will not scar the most highly polished woods, and will hold any door open at any desired angle and for any length of time. It is easily operated by simply pressing the plunger down with the foot and drawing the door over the rubber padded projection. To release, the plunger is pressed down until the door swings free again. It is also a handy contrivance for carpenters or locksmiths, as it holds the door perfectly steady, no matter how much pressure is brought to bear. Made in three finishes—bronze, nickel and oxidized copper. [Portable Door Check Co., 141 Milk street, Boston, Massachusetts.]



PORTABLE DOOR HOLDER.

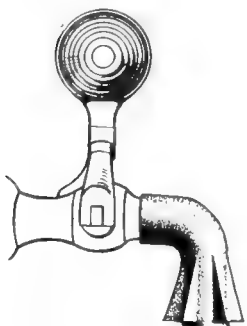
RUBBER BAGS FOR INNER TUBES.

A neat carrier and protector for spare inner tubes is shown in the illustration. It is made of a rubberized fabric absolutely dirt and water proof. It is large enough to hold five inner tubes and will last a long time. The case protects the tubes from oil, grease, water and from rubbing against tools—all great destroyers. Many times when in a hurry to put in a tube it is found that it will not hold air or has rotted in some way; all this is due to carelessness in the carrying. It is claimed that the price of more than one tube a season can be saved by carrying them in these bags. [The Goodyear Tire & Rubber Co., Akron, Ohio.]



IT SAVES THE GLASSES.

The delicate glasses sometimes used in drug stores at the soda-water fountain and in saloons and hotels are very likely to be broken when they strike against a metal faucet. A contrivance called a glass faucet protector has been invented to obviate this difficulty. It is a corrugated rubber sleeve that goes over the faucet and acts as a cushion. [McKenna Rubber Co., Schenectady, New York.]



THE MCKENNA FAUCET
PROTECTOR.

A PORTABLE SHOWER BATH.

The Englishman has been celebrated for his propensity for carrying his tub with him wherever he goes; but the Australian is really going him one better, for there has recently been introduced into the Australian market a device by which a man can carry his shower bath around with him. It is not a very complicated device either. It consists of a tank, holding one or two gallons, which is filled with water of a temperature to suit the individual taste and then hung up on a peg or put up on a shelf. Attached to the bottom of this tank is a small rubber pipe several feet long, and at the end of it is a brush, which serves either to spray the water for a shower or as a water brush. A shallow tray, in which the bather stands, collects the water and completes the outfit.

YOUR OWN TIRE REPAIRER.

Every automobilist has plenty of trouble with his tires. Here is a new preparation, called "Vulco," intended to relieve him of at least some of his troubles. It is a rubber substance for repairing injuries to auto tires and tubes and all other rubber materials. The outfit consists of two small cans, one holding the Vulco, the other the Vulco cement. These two are enclosed, with a few pieces of sandpaper, in a larger can, which in turn is not too bulky to be carried in the pocket. In case of any damage to the tire the spot is first rubbed with sandpaper, then washed with gasoline, which is allowed to evaporate, and then a coat of Vulco cement is applied. This dries in about 10 minutes. When the cement is dry, a small piece of Vulco is kneaded between the fingers until plastic and then pushed into the injured spot with the thumb. The action of the air will thoroughly cure the Vulco, and if the repair is done at night the place is sound and serviceable next morning. [Standard Rubber and Cable Co., Bristol, Connecticut.]

A NEW TIRE PRESERVATIVE.

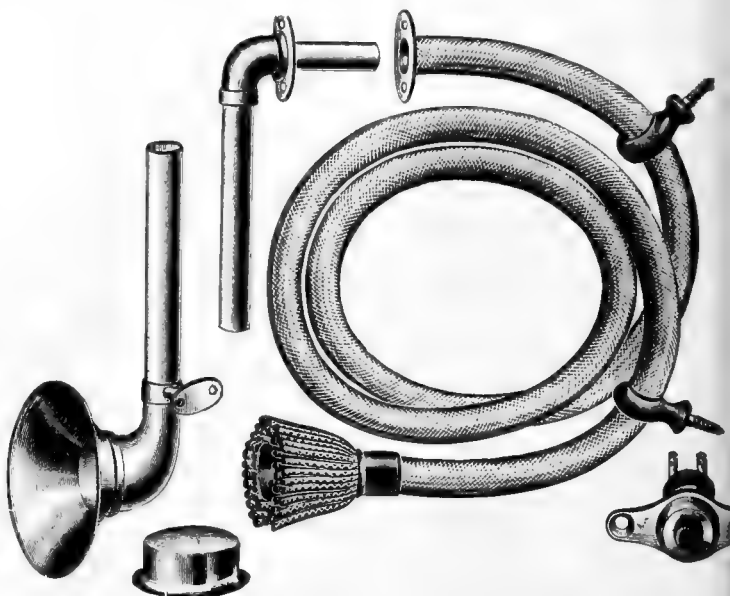
Among the many preservatives for tires is one called "Tire-new." It is claimed to be a "scientific rubber coating," and will make tires look like new and last much longer. It is particularly adapted for winter use and is always ready for application. It comes in colors, gray and white. [National Rubber Co., St. Louis, Missouri.]

HAT ELASTIC IN QUEEN MARY'S COURT.

It will be of interest to the wearers of hatpins to note that Queen Mary has issued an edict that the ladies of her court shall not wear or in any way use the dangerous hatpins, as she states they are "unjust to others and risky to one's self." In place of these needles of torture she proposes that the creations of flowers and curls shall be attached to the head by means of the good old-fashioned elastic band of generous width and sober colors.

AN AUTOMOBILE MEGAPHONE.

Something new, which is an extensible telescoping megaphone, has recently been put on the market. The accompanying illustration shows the different parts. The megaphone can be adjusted

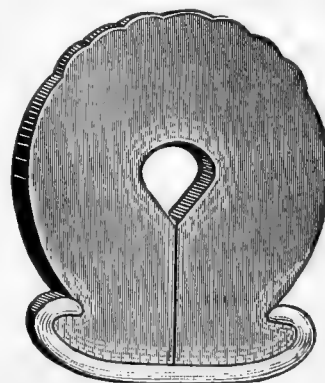


AN AUTOMOBILE MEGAPHONE.

to any height to suit the chauffeur. The extension horn is made either with or without an inside whistle. The rubber tubing is covered with silk and the mouthpiece is either made plain or covered with tasseled silk, and the runners are of brass. [E. F. Rogers Co., Inc., Philadelphia, Pennsylvania.]

A TIRELESS TIRE.

"The Tire that Never Tires" is the catch line the Cleveland Puncture Proof Tire Company uses in exploiting its "air



A PUNCTURE-PROOF TIRE.

cushion" tire. This tire, which needs no inflation, "is as easy," its manufacturers claim, "as a pneumatic tire when properly inflated." The accompanying cut gives a cross sectional view. [The Cleveland Puncture Proof Tire Company, Columbus, Ohio.]

The Inter-State Rubber Co., Omaha, Nebraska, is circulating a 36-page catalogue, size 6 x 9 inches, illustrating the rubber clothing, boots and shoes, leggings, and other rubber articles sold by this company, and giving the net prices of the various articles mentioned.

EMERGENCY BAND AND PROTECTION PATCH.

NEGLECTED repairs or repairs that are improperly made are the cause of many tire troubles. A small cut will be made in a tire which, properly taken care of, would result in very little trouble, but improperly cared for soon renders the tire hopeless.

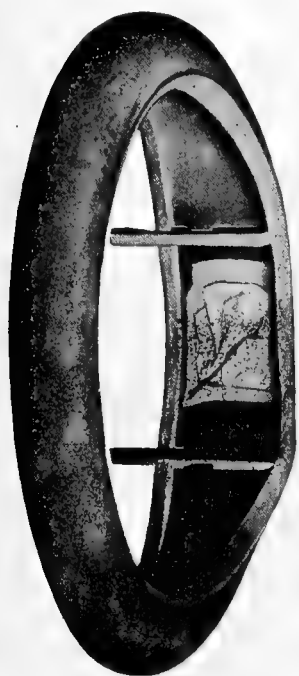


FIG. I.



FIG. II.

One improper way to take care of these cuts is to apply an inside patch immediately on the cut as shown in Fig. I, which, instead of helping the situation, in reality aggravates it. This patch having nothing to keep it properly in place, acts as a wedge, and gradually pushes through the cut, pulling the fabric apart as shown in Fig. II. This result really does not come from any weakness in the tire, for any tire is likely to come in contact with sharp objects with a resulting cut. This condition is due to an improper method of repairing.



FIG. III.



FIG. IV.

The B. F. Goodrich Co., Akron, Ohio, has devised an emergency band and inside protection patch to meet this situation.

These are shown in Figs. III and IV. When the protection patch is put inside the tire and the emergency band laced around the place, the cut is permanently repaired.

TIRES FOR ELECTRICAL VEHICLES.

There has been a great deal of discussion and quite a diversity of opinion among people interested in electrical vehicles, both pleasure and commercial, as to the best sort of tire. The opinion is practically unanimous for heavy commercial electrical vehicles that the tire should be solid, as owing to their great weight the pneumatic tire is almost out of the question; but there is some difference of opinion regarding the tiring of pleasure electrical vehicles. The predominating opinion, however, seems to be that even in this case the solid tire is preferable, because these vehicles do not ordinarily require a great rate of speed. They are not therefore subjected to as much jar and jolt as the faster moving automobiles, and the solid tire generally possesses sufficient resiliency to protect against the jarring of the batteries and mechanism; while the using up of energy, that is the current consumption, is less with the solid tire. Of course it would be even less with a hard tire, but the hard tire would be uneconomical, to say nothing of being uncomfortable, because of the jarring and the consequent wearing of the batteries and mechanisms.

WINTERING YOUR TIRES.

The United States Tire Co., which from time to time distributes to tire users a good deal of advice as to tire care, has recently circulated some seasonable suggestions regarding the proper treatment of tires during the winter. Condensed, they are as follows: If the car is to be laid up for the winter, the tires should be removed, washed with soap and water, wrapped up in strips of paper or cloth and put away in a dark place, the temperature preferably about 50 degs. If the car is to be out of service for some time, but it is thought advisable not to remove the tires, the wheels should be jacked up and about 5 pounds of air left in each tire to preserve its shape and keep it soft and pliable.

But where the car cannot be jacked up and is allowed to stand unused for some time, the tires should be kept well inflated and the car shifted a little from time to time so that the pressure will not remain too long on one spot.

AUTOMOBILE EXPORTS INCREASING AND IMPORTS DECREASING.

The figures compiled by the Bureau of Statistics at Washington show that the export business in automobiles increased about 75 per cent. during the nine months ending with September, 1911, over the same nine months of the preceding year, while that period in turn showed an increase of nearly 100 per cent. over the same period in 1909. But imports have constantly decreased.

The number of automobiles imported in the nine months ending with September, 1911, was 670, valued at \$1,450,222; against 809 automobiles valued at \$1,623,140 in the corresponding months of 1910 and 1,208 valued at \$2,218,414 in the corresponding months of 1909. Of the 670 automobiles imported in the nine months of 1911, 227 were from France, 113 from Germany, 105 from the United Kingdom and 85 from Italy. The number of automobiles exported in the nine months under consideration was, in 1911, 11,244, valued at \$11,565,034, against 6,472, valued at \$8,874,066 in the like period of 1910 and 3,426 valued at \$5,481,707 in the like period of 1909. The largest exportation in the nine months of 1911 was to Canada, 4,107 cars, compared with 2,563 to the United Kingdom, 352 to France and 884 to other parts of Europe, while shipments were also made to Mexico, the West Indies, and various countries in South America, Asia, Oceania and Africa.

Review of the Crude Rubber Market.

THE London sales of October 31, which had been expected to govern the operations of buyers, resulted in about one-third of the offerings being sold, the closing prices showing an advance over those ruling earlier in the day. Continued abstention on the part of large continental manufacturers, owing to the weather not having been favorable to the reduction of stocks, was considered as accounting for the relatively small proportion sold. Ceylon qualities seem to have been relatively in best demand.

During the succeeding week, holders refusing to grant concessions, the established basis of \$1.02 was maintained. An advance to \$1.05 was then obtained, followed by a drop to \$1.02 by the middle of the month.

This slight fall was counteracted by a return by 28th to \$1.04. A better and more confident feeling characterized the London market during the closing days of November. Both buyers and sellers seem to have been agreed on the policy of maintaining values.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and November 29—the current date.

PARÁ.	Dec. 1, '10.	Nov. 1, '11.	Nov. 29, '11.
Islands, fine, new.....	128@129	97@ 98	93@ 94
Islands, fine, old.....	none here	100@101	96@ 97
Upriver, fine, new.....	150@152	104@105	103@104
Upriver, fine, old.....	152@153	106@107	107@108
Islands, coarse, new.....	72½@ 73½	57@ 58	58@ 59
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	108@109	90@ 91	89@ 90
Upriver, coarse, old.....	none here	none here	none here
Cametá	75@ 76	59@ 60	60@ 61
Caucho (Peruvian) ball.....	105@106	89@ 90	89@ 90
Caucho (Peruvian) sheet.....	none here	none here	none here

PLANTATION PARÁ.

Fine Smoked sheet	165@166	114@115	117@118
Fine pale crepe.....	156@157	115@116	118@119
Fine sheets and biscuits.....	150@151	112@113	113@114

CENTRALS.

Esmeralda, sausage	96@ 97	82@ 83	83@ 84
Guayaquil, strip	none here	none here	none here
Nicaragua, scrap	92@ 93	81@ 82	82@ 83
Panama	none here	none here	none here
Mexican, scrap	92@ 93	82@ 83	81@ 82
Mexican, slab	60@ 61	none here	none here
Mangabeira, sheet	75@ 76	58@ 63	62@ 63
Guayule	65@ 66	45@ ..	47@ 48
Balata, sheet .....	..@ 80	85@ 86	86@ 87
Balata, block .....	..@ 56	53@ 54	55@ 56

AFRICAN.

Lopori ball, prime.....	125@126	98@ 99	101@102
Lopori strip, prime.....	none here	none here	none here
Aruwimi	110@111	94@ 95	100@101
Upper Congo ball, red.....	115@116	90@ 91	96@ 97
Ikelemba	none here	none here	none here
Sierra Leone, 1st quality.....	124@125	86@ 87	84@ 85
Massai, red	124@125	89@ 90	85@ 86
Soudan Niggers	112@113	none here	81@ 82
Cameroon ball	66@ 67	65@ 66	63@ 64
Benguela	85@ 86	65@ 66	62@ 64
Madagascar, pinky	none here	76@ 77	75@ 76
Accra, flake	45@ 46	28@ 29	27@ 28
Pontianak	5½@ 5¼	5½@ ..	5½@ ..

EAST INDIAN.

Assam	none here	none here	none here
Pontianak	5¼@ 5¼	5½@ ..	5½
Borneo	none here	none here	none here

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine	3\$900	Upriver, fine	5\$150
Islands, coarse	2\$200	Upriver, coarse	4\$200
		Exchange	16 9-32d.

Latest Manáos advices:

Upriver, fine	5\$300	Exchange	16 9-32d.
Upriver, coarse	4\$100		

New York.

IN REGARD to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During November the demand for commercial paper has continued very good, both from city banks and those out of town, the best rubber names ruling at 4½@5 per cent., and those not so well known at 5½@5¾ per cent."

NEW YORK PRICES FOR OCTOBER (NEW RUBBER).

	1911.	1910.	1909.
Upriver, fine	\$1.00@1.12	\$1.37@1.50	\$2.02@2.15
Upriver, coarse .....	.90@ .96	1.02@1.20	1.20@1.32
Islands, fine .....	.96@1.07	1.20@1.46	1.83@2.02
Islands, coarse .....	.56@ .63	.73@ .90	.72@ .82
Cametá .....	.60@ .66	.75@ .89	.83@ .96

African Rubbers.

NEW YORK STOCKS (IN TONS).

October 1, 1910.....	375	May 1, 1911.....	98
November 1.....	100	June 1.....	90
December 1.....	140	July 1.....	90
January 1, 1911.....	115	August 1.....	90
February 1.....	115	September 1.....	112
March 1.....	111	October 1.....	67
April 1.....	98	November 1.....	45

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

1911.			
July 7.....	4/2½	September 15.....	5/
July 14.....	4/5½	September 22.....	4/10½
July 21.....	4/7	September 29.....	4/8
July 28.....	4/8	October 6.....	4/7
August 4.....	4/7½	October 13.....	4/5
August 11.....	4/7½	October 20.....	4/6½
August 18.....	4/7½	October 27.....	4/4
August 25.....	4/10½	November 3.....	4/3
September 1.....	4/8½	November 10.....	4/4½
September 8.....	4/9	November 17.....	4/3

Liverpool.

WILLIAM WRIGHT & Co. report [November 1]:

Fine Pará.—There has been rather more activity in the market, but prices have gradually declined to 4s. 3¾d., a drop of about 4d. per pound. A revolution has broken out in the Acre district, but this, while it will probably delay supplies for a time from that region, will not eventually affect the crop. Meantime the market treats it with indifference, as there is plenty of spot rubber still to be sold. The tone on the whole is steady. America is willing to buy and has bought (about 400 tons shipped from here), but as soon as prices advance beyond a certain point they withdraw and wait a further opportunity. This we think also applies to European manufacturers, consequently the present outlook points to moderate fluctuations. Closing value: Hard Fine, 4s. 3d. [\$1.03]; Soft Fine, 4s. [97.3 cents].

Amsterdam.

JOOSTEN & JANSEEN REPORT [NOVEMBER 11]:

Yesterday's sale was marked by a strong demand for all plantation grades; for *Heveas* as well as for *Rambongs* and *Castilloas*. The few lots bought in were of inferior quality or were being held above the market value.

The prices paid exceeded the valuations by the equivalent of 2 to 6 cents per pound. About 40,000 pounds were sold and a similar quantity is now being offered, including *Hevea* crepe and sheets, *Castilloa*, *Ficus* and *Ceara*.

Rubber and Caucho Receipts at Manaos.

FROM—	JUNE.			JULY.			AUGUST.			SEPTEMBER.		
	1911.	1910.	1909.	1911.	1910.	1909.	1911.	1910.	1909.	1911.	1910.	1909.
Rio Purús-Acre	241	25	188	369	313	425	494	433	448	687	599	545
Rio Madeira	162	267	163	261	332	369	530	373	376	140	139	268
Rio Juruá	60	87	125	38	38	27	91	95	204	177	208	87
Rio Javary-Iquitos	118	111	161	104	29	210	206	220	321	201	222	120
Rio Solimões	14	13	20	18	22	4	74	52	33	131	128	104
Rio Negro	44	14	8	9	...	5	...	...	...	...	...	2
Total	639	884	665	799	734	1,040	1,395	1,183	1,375	1,438	1,296	1,126
<i>For Shipment From—</i>												
Manaos	512	756	536	647	619	883	1,022	972	1,281	1,108	1,136	907
Pará	127	128	129	152	124	157	373	211	94	330	160	219
Total	639	884	665	799	734	1,040	1,395	1,183	1,375	1,438	1,296	1,126

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.

	Fine and Medium.	Coarse.	Total.	Total.	Total.
	1911.	1910.	1909.	1911.	1910.
Stocks, September 30...tons	271	51	322	175	142
Arrivals, October	1,504	419	1,923	1,240	1,180
Aggregating	1,775	470	4,156	1,415	1,322
Deliveries, October	1,465	428	1,893	1,204	1,106
Stocks, October 31	310	42	352	211	216

	PARA.			ENGLAND.		
	1911.	1910.	1909.	1911.	1910.	1909.
Stocks, September 30 tons	2,690	860	755	855	1,308	325
Arrivals, October	2,990	2,705	2,740	288	332	730
Aggregating	5,680	3,565	3,495	1,143	1,640	1,055
Deliveries, October	2,205	2,690	3,265	393	520	825
Stocks, October 31....	3,475	875	230	750	1,120	230

	1911.	1910.	1909.
World's visible supply, October 31...tons	5,887	3,524	2,537
Pará receipts, July 1 to October 31.....	7,950	7,535	7,460
Pará receipts of caucho, same dates....	1,050	1,800	1,140
Afloat from Pará to United States, Oct. 31	530	278	966
Afloat from Pará to Europe, October 31..	780	1,040	895

Rubber Stock at Para.

A slight increase of stock at Pará was recorded for October 31, the recent figures being:

1911.	Tons.	1911.	Tons.
January 31.....	2,085	June 30.....	4,545
February 28.....	3,787	July 31.....	3,884
March 31.....	4,214	August 31.....	3,450
April 30.....	5,104	September 30.....	3,102
May 31.....	5,350	October 31.....	3,320

The proportion of rubber on October 31 in first hands was only 470 tons; that in second hands still predominating.

Para.**R. O. AHLERS & Co. REPORT [OCTOBER 31]:**

Since our last report prices have declined further all around, as entries continue to be regular.

R. O. AHLERS & Co. report [November 31]:

Today showed a slightly firmer tendency, but the prices are considered very unsatisfactory.

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to October 23, 1910 and 1911. Compiled by the Ceylon Chamber of Commerce.]

	1910.	1911.
To Great Britain.....pounds	1,135,094	2,371,465
To United States.....	1,033,920	1,436,403
To Belgium	35,799	544,157
To Japan	448	40,762
To Germany	10,724	32,881
To Australia	4,604	31,990
To Canada	1,911	13,830
To Holland .....	...	8,413
To Italy	841	4,035
To Austria .....	...	3,088
To France .....	...	117
To India .....	...	85
To Africa .....	...	35
Total	2,223,341	4,487,261
[Same period 1909, 982,680 pounds; same 1908, 606,907.]		

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

	1909.	1910.	1911.
From—			
Singapore (to Sept. 27)...pounds	1,902,916	2,659,962	4,538,628
Penang (to Sept. 15).....	1,685,291	1,546,034	3,256,167
Port Swettenham (to August 31).	5,410,735	7,488,322	...
Total	3,588,207	9,616,731	15,283,117

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are practically unchanged:

	November 1.	December 1.
Old rubber boots and shoes—domestic..	9½@ 9¼	9¼@ 9½
Old rubber boots and shoes—foreign....	9 @ 9½	9½@ 9¼
Pneumatic bicycle tires.....	4½@ 4¾	4½@ 4¾
Automobile tires	8½@ 8¾	8¼@ 8½
Solid rubber wagon and carriage tires...	9¼@ 9¾	9¼@ 9¾
White trimmed rubber.....	11 @11½	11 @11½
Heavy black rubber.....	4¾@ 5	4¾@ 5
Air brake hose	4½@ 4¾	4½@ 4¾
Garden hose	1¼@ 1¾	1¼@ 1¾
Fire and large hose.....	2 @ 2¼	2 @ 2¼
Matting	7½@ 1	7½@ 1

IMPORTS FROM PARA AT NEW YORK.

The Figures Indicate Weight in Pounds.

NOVEMBER 3.—By the steamer *Stephen*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold.....	304,800	42,400	148,300	56,100=	551,600
A. T. Morse & Co.....	156,100	17,600	106,500	.....=	280,200
New York Commercial Co.....	119,500	28,200	23,800	700=	172,300
General Rubber Co.....	76,200	16,800	15,300	1,400=	109,700
De Lagottellerie & Co.....	44,600	3,200	2,600	.....=	50,400
Hagemeyer & Brunn.....	28,200	1,100	5,300	.....=	34,600
G. Amsinck & Co.....	10,000	.....	9,900	.....=	19,900
Total	739,400	109,300	311,700	58,200=	1,218,600

NOVEMBER 15.—By the steamer *Dunstan*, from Manáos and Pará:

Poel & Arnold.....	435,400	56,000	98,900	31,100=	621,400
New York Commercial Co.....	188,600	53,600	72,600	9,500=	324,300
A. T. Morse & Co.....	85,800	8,200	78,500	21,600=	194,100
General Rubber Co.....	77,300	17,800	16,400	4,300=	115,800
De Lagottellerie & Co.....	56,400	5,000	4,600	.....=	66,000
Hagemeyer & Brunn.....	28,200	2,200	13,200	.....=	43,600
Total	871,700	142,800	284,200	66,500=	1,365,200

NOVEMBER 20.—By the steamer *Sao Paulo*, from Pará:

Poel & Arnold.....	87,000	7,900	67,700	8,600=	171,200
A. T. Morse & Co.....	49,600	4,600	33,700	.....=	87,900
Hagemeyer & Brunn.....	20,000	1,100	5,300	.....=	26,400
General Rubber Co.....	.....	.....	.....	10,500=	10,500
De Lagottellerie & Co.....	.....	.....	6,600	.....=	6,600
New York Commercial Co.....	.....	.....	4,000	.....=	4,000
Total	156,600	13,600	117,300	19,100=	306,600

NOVEMBER 20.—By the steamer *Acre*, from Manáos and Pará:

Poel & Arnold.....	102,000	16,900	135,300	3,800=	258,000
A. T. Morse & Co.....	94,100	16,100	37,700	300=	148,200
New York Commercial Co.....	19,300	13,600	3,900	1,000=	37,800
General Rubber Co.....	.....	.....	8,100	200=	8,300
Hagemeyer & Brunn.....	6,400	.....	600	.....=	7,000
Total	221,800	46,600	185,600	5,300	459,300

NOVEMBER 25.—By the steamer *Javary*, from Manáos:

New York Commercial Co.....	168,800	5,000	22,400	600=	196,800
Poel & Arnold.....	28,900	21,800	.....	.....=	50,700
H. A. Astlett.....	4,200	2,500	1,300	700=	8,700
Total	201,900	29,300	23,700	1,300=	256,200

PARA RUBBER VIA EUROPE.

POUNDS.

OCTOBER 26.—By the *Mauretania*=Liverpool:

N. Y. Commercial Co. (Fine)...	11,500	
Raw Products Co. (Coarse)....	11,000	
General Rubber Co. (Coarse)....	11,500	
Robinson & Co. (Coarse).....	6,500	
A. T. Morse & Co. (Caucho)....	2,500	43,000

OCTOBER 30.—By the *Colon*=Mollendo:

W. R. Grace & Co. (Fine).....	11,000	
W. R. Grace & Co. (Caucho)....	22,500	33,500

NOVEMBER 3.—By the *Lusitania*=Liverpool:

Raw Products Co. (Fine).....	33,500	
Poel & Arnold (Fine).....	5,500	
In Transit (Fine).....	22,500	
Poel & Arnold (Caucho).....	45,000	106,500

NOVEMBER 4.—By the *Cedric*=Liverpool:

Robinson & Co. (Fine).....	11,500	
Henderson & Korn (Fine).....	7,000	18,500

NOVEMBER 8.—By the *Trent*=Mollendo:

A. T. Morse & Co. (Fine).....	13,000	
N. Y. Commercial Co. (Fine)....	7,000	20,000

NOVEMBER 10.—By the *President Grant*=Hamburg:

A. T. Morse & Co. (Fine).....	5,500	
A. T. Morse & Co. (Caucho)....	4,500	
Henderson & Korn (Caucho)....	2,000	12,000

NOVEMBER 13.—By the *Caronia*=Liverpool:

Poel & Arnold (Coarse).....	11,500	
General Rubber Co. (Coarse)....	13,500	
Raw Products Co. (Coarse)....	9,000	
Muller Schall & Co. (Coarse)....	9,000	
Poel & Arnold (Caucho).....	11,500	54,500

NOVEMBER 17.—By the *Mauretania*=Liverpool:

Raw Products Co. (Coarse)....	11,000	
Henry A. Gould Co. (Fine).....	5,500	
A. W. Brunn (Fine).....	4,500	
In Transit (Fine).....	7,000	28,000

NOVEMBER 23.—By the *Oruba*=Mollendo:

W. R. Grace & Co. (Fine).....	3,500	
W. R. Grace & Co. (Caucho)....	15,000	18,500

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

POUNDS.

OCTOBER 28.—By the *Morro Castle*=Frontera:

Lawrence Import Co.	2,000	
W. Loazia & Co., of N. Y.....	2,000	
H. Marquardt & Co.....	1,500	
Maitland, Coppell & Co.....	1,000	
Harburger & Stack.....	1,000	7,500

OCTOBER 20.—By the *Santiago*=Tampico:

New York Commercial Co.....	*75,000	
E. Maurer	*20,000	
For Europe	*80,000	*175,000

OCTOBER 30.—By the *Colon*=Colon:

G. Amsinck & Co.....	11,000	
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American Trading Co.....	5,000	
A. T. Morse & Co.....	5,000	
Piza, Nephews & Co.....	3,500	
General Exp. Comm. Co.....	2,500	
Isaac Brandon & Bros.....	2,000	29,000

OCTOBER 31.—By the *Antilles*=New Orleans:

Eggers & Heinlein	3,500	
Robinson & Co.....	3,000	
G. Amsinck & Co.....	2,000	
A. T. Morse & Co.....	2,000	
Wessels, Kulenkampf & Co....	1,500	12,000

OCTOBER 31.—By the *El Mundo*=Galveston:

Continental-Mexican Rubber Co. *	150,000	
Charles T. Wilson.....	*45,000	*195,000

NOVEMBER 1.—By the *Allemanina*=Colombia:

A. Angela & Co.....	12,000	
G. Amsinck & Co.....	3,500	
Schutte Bunemann & Co.....	1,000	16,500

NOVEMBER 3.—By the *Lusitania*=Liverpool:

New York Commercial Co.....	*11,000	
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NOVEMBER 4.—By the *Carolina*=Havre:

Michelin Tire Co.....	13,500	
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NOVEMBER 4.—By the *El Cid*=Galveston:

Continental-Mexican Rubber Co.....	*77,000	
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NOVEMBER 4.—By the *Cedric*=Liverpool:

C. P. dos Santos.....	11,500	
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NOVEMBER 6.—By the *Matanzas*=Tampico:

Ed Maurer	*100,000	
Maitland, Coppell & Co.....	*34,000	
For Europe	*44,000	*178,000

NOVEMBER 6.—By the *Monterey*=Vera Cruz:

E. Nelson Tibbals & Co.....	6,000	
American Trading Co.....	2,500	
Harburger & Stack.....	2,500	
Herman Klugg	2,500	
E. Steiger & Co.....	1,500	
H. Marquardt & Co.....	1,000	16,000

NOVEMBER 6.—By the *Prinz Eitel Friedrich*=Colombia:

Maitland, Coppell & Co.....	5,500	
Mecke & Co.....	5,500	
R. Del Castillo & Co.....	1,000	12,000

NOVEMBER 8.—By the *Advance*=Colon:

G. Amsinck & Co.....	18,000	
Isaac Brandon & Bros.....	8,500	
E. Nelson Tibbals & Co.....	5,500	
Dumarest Bros. & Co.....	3,000	
Pablo, Calvert & Co.....	2,000	
Lanman & Kemp	1,500	
Roldau & Van Sickle	1,000	39,500

NOVEMBER 8.—By the *El Oriente*=Galveston:

Continental-Mexican Rubber Co.....	*150,000	
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NOVEMBER 8.—By the *Trent*=Colombia:

A. M. Capen's Sons.....	7,000	
J. Sambrada & Co.....	1,500	
H. C. Coleman	1,000	
G. Amsinck & Co.....	1,000	10,500

NOVEMBER 13.—By the *Mexico*=Frontera:

A. T. Morse & Co.....	5,000	
Harburger & Stack.....	3,000	

E. Nelson Tibbals & Co.....	2,500	
American Trading Co.....	1,500	12,000

NOVEMBER 13.—By the *Panama*=Colon:

Isaac Brandon & Bros.....	14,000	
Laurence Johnson & Co.....	4,500	
E. Nelson Tibbals & Co.....	4,000	
G. Amsinck & Co.....	3,000	
Andean Trading Co.....	3,000	28,500

NOVEMBER 14.—By the *Albion*=Colombia:

A. Angela & Co.....	13,000	
Maitland, Coppell & Co.....	5,000	
Caballero & Blanco.....	2,500	
Iglesias, Lobo & Co.....	1,000	
R. Del Castillo & Co.....	1,000	22,500

NOVEMBER 14.—By the *El Sol*=Galveston:

Continental-Mexican Rubber Co. *	*89,000	
Charles T. Wilson.....	*7,000	*96,000

NOVEMBER 14.—By the *Monus*=New Orleans:

Manhattan Rubber Mfg. Co.....	9,000	
Robinson & Co.....	3,500	
G. Amsinck & Co.....	3,500	
Eggers & Heinlein	2,500	
Wessels, Kulenkampf & Co....	2,000	
A. T. Morse & Co.....	2,000	22,500

NOVEMBER 17.—By the *Alliance*=Colon:

G. Amsinck & Co.....	11,500	
Dumarest Bros. & Co.....	2,000	
Silva, Bussenius & Co.....	1,500	
Maitland, Coppell & Co.....	1,000	16,000

NOVEMBER 18.—By the *El Valle*=Galveston:

Continental-Mexican Rubber Co.....	*80,000	
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NOVEMBER 18.—By the *Camaguey*=Tampico:

New York Commercial Co.....	*175,000	
Ed Maurer	*50,000	
Poel & Arnold	*22,500	
For Hamburg	*50,000	292,500

NOVEMBER 21.—By the *El Mundo*=Galveston:

Continental-Mexican Rubber Co. *	*45,000	
Charles T. Wilson.....	*9,000	*54,000

NOVEMBER 22.—By the *Oruba*=Colombia:

A. M. Capen's Sons.....	11,500	
G. Amsinck & Co.....	11,500	
Mecke & Co.....	3,500	
J. Sambrada & Co.....	2,500	
Delima, Cortissoz & Co.....	1,500	
Roldau & Van Sickle.....	1,000	
Meyer Hecht	1,000	32,500

NOVEMBER 23.—By the *Antilles*=Tampico:

New York Commercial Co.....	*175,000	
Ed Maurer	*150,000	
Continental-Mexican Rubber Co. *	*125,000	
Poel & Arnold	*22,500	
For Europe	*80,000	*452,500

AFRICAN.

OCTOBER 26.—By the *Mauretania*=Liverpool:

General Rubber Co.....	11,500	
Wallace L. Gough.....	13,000	
Poel & Arnold.....	11,000	
Ed Maurer	9,000	
Robinson & Co.....	5,500	50,000

OCTOBER 28.—By the *Kaiserin Auguste Victoria*=Hamburg:

A. T. Morse & Co.....	45,000	
George A. Alden & Co.....	9,000	
Robert Badenhop	9,000	
Ed Maurer	5,000	
Poel & Arnold.....	3,000	
Raw Products Co.....	2,000	73,000

OCTOBER 31.—By the <i>Zeeland</i> =Antwerp:	
Poel & Arnold	6,500
NOVEMBER 3.—By the <i>Lusitania</i> =Liverpool:	
Muller, Schall & Co.	5,500
Wallace L. Gough Co.	5,500
George A. Alden & Co.	2,500
Ed Maurer	2,000 15,500
NOVEMBER 4.—By the <i>Cedric</i> =Liverpool:	
James T. Johnstone	9,000
Ed Maurer	2,500 11,500
NOVEMBER 8.—By the <i>Kroonland</i> =Antwerp:	
George A. Alden & Co.	45,000
Poel & Arnold	25,000
Wallace L. Gough Co.	22,500
Raw Products Co.	11,500
General Rubber Co.	13,500
Rubber Trading Co.	15,000
Muller, Schall & Co.	13,500 146,000
NOVEMBER 8.—By the <i>President Grant</i> =Hamburg:	
Poel & Arnold	60,000
A. T. Morse & Co.	30,000
Wallace L. Gough Co.	35,000
General Rubber Co.	17,000
Rubber Trading Co.	10,000
Henderson & Korn	8,000
Robert Badenhop	7,000 167,000
NOVEMBER 13.—By the <i>Caronia</i> =Liverpool:	
Poel & Arnold	22,500
Muller, Schall & Co.	11,000
Raw Products Co.	3,500 37,000
NOVEMBER 13.—By the <i>Baltic</i> =Liverpool:	
James T. Johnstone	4,500
A. W. Brunn	4,500 9,000
NOVEMBER 13.—By the <i>Lapland</i> =Antwerp:	
General Rubber Co.	70,000
Wallace L. Gough Co.	11,000
In Transit	11,500
Rubber Trading Co.	8,000 100,500
NOVEMBER 16.—By the <i>St. Paul</i> =London:	
Poel & Arnold	15,500
A. T. Morse & Co.	3,000 18,500
NOVEMBER 17.—By the <i>Mauretania</i> =Liverpool:	
George A. Alden & Co.	18,000
General Rubber Co.	11,000 29,000
NOVEMBER 20.—By the <i>Celtic</i> =Liverpool:	
James T. Johnstone	11,500
NOVEMBER 20.—By the <i>Rochambeau</i> =Havre:	
A. T. Morse & Co.	17,500
Poel & Arnold	3,500
In Transit	17,000 38,000
NOVEMBER 23.—By the <i>Faderland</i> =Antwerp:	
A. T. Morse & Co.	11,000
Raw Products Co.	2,500 13,500

EAST INDIAN.

[*Denotes Plantation Rubber.]

POUNDS.

OCTOBER 27.—By the <i>Adriatic</i> =London:	
Ed Maurer	*37,000
OCTOBER 28.—By the <i>Kybele</i> =Colombo:	
A. T. Morse & Co.	*31,000
New York Commercial Co.	*16,000
Muller, Schall & Co.	*4,500 *51,500
OCTOBER 30.—By the <i>St. Louis</i> =London:	
Poel & Arnold	*22,500
New York Commercial Co.	*9,000 31,500
OCTOBER 31.—By the <i>Zeeland</i> =Antwerp:	
A. T. Morse & Co.	*25,000
OCTOBER 31.—By the <i>Minnetonka</i> =London:	
Poel & Arnold	*17,000
A. T. Morse & Co.	*13,500 *30,500
NOVEMBER 1.—By the <i>Oceanic</i> =London:	
A. T. Morse & Co.	*13,000
New York Commercial Co.	*11,000
Poel & Arnold	*4,500 *28,500

NOVEMBER 3.—By the <i>Lusitania</i> =Liverpool:	
Ed Maurer	*17,000
NOVEMBER 4.—By the <i>Cedric</i> =Liverpool:	
Ed Maurer	*9,000
NOVEMBER 6.—By the <i>Kasenga</i> =Colombo:	
New York Commercial Co.	*55,000
A. T. Morse & Co.	*22,500 *77,500
NOVEMBER 8.—By the <i>Kroonland</i> =Antwerp:	
A. T. Morse & Co.	*56,000
Ed Maurer	*11,500
Robert Badenhop	*2,500 *70,000
NOVEMBER 8.—By the <i>Minnehaha</i> =London:	
A. T. Morse & Co.	*34,000
Henderson & Korn	*33,500
General Rubber Co.	*33,000
Ed Maurer	*11,500
Poel & Arnold	*11,000
James T. Johnstone	*7,000
New York Commercial Co.	*5,500
Rubber Trading Co.	*2,500
Raw Products Co.	*3,500
In Transit	*20,000 *161,500
NOVEMBER 9.—By the <i>Adamstrum</i> =Colombo:	
A. T. Morse & Co.	*50,000
New York Commercial Co.	*7,000 *57,000
NOVEMBER 10.—By the <i>New York</i> =London:	
Poel & Arnold	*25,000
New York Commercial Co.	*11,000
Henderson & Korn	*2,000 *38,000
NOVEMBER 10.—By the <i>President Grant</i> =Hamburg:	
Robert Badenhop	*11,000
NOVEMBER 13.—By the <i>Caronia</i> =Liverpool:	
Ed Maurer	*30,000
Raw Products Co.	*3,500 *33,500
NOVEMBER 13.—By the <i>Lapland</i> =Antwerp:	
A. T. Morse & Co.	*15,000
Robert Badenhop	*11,000
In Transit	*11,500 *37,500
NOVEMBER 15.—By the <i>Minnewaska</i> =London:	
Poel & Arnold	*28,000
General Rubber Co.	*22,500
A. T. Morse & Co.	*13,500
Henderson & Korn	*11,000
Robinson & Co.	11,000 86,000
NOVEMBER 16.—By the <i>St. Paul</i> =London:	
New York Commercial Co.	*33,500
James T. Johnstone	*7,000 *40,500
NOVEMBER 16.—By the <i>Katuna</i> =Singapore:	
Ed Maurer	*30,000
L. Littlejohn & Co.	*25,000
Haebler & Co.	*11,500
New York Commercial Co.	*5,500
A. W. Brunn	*11,000
Haebler & Co.	11,500
Poel & Arnold	11,000
L. Littlejohn & Co.	11,500
Wallace L. Gough Co.	5,000
Manhattan Rubber Mfg. Co.	7,000 129,000
NOVEMBER 17.—By the <i>Mauretania</i> =Liverpool:	
Ed Maurer	*13,500
William H. Stiles	*9,000 *22,500
NOVEMBER 20.—By the <i>Philadelphia</i> =London:	
Poel & Arnold	*56,000
A. T. Morse & Co.	*11,000
William H. Stiles	*4,500
In Transit	*45,000 *116,500
NOVEMBER 22.—By the <i>Faderland</i> =Antwerp:	
A. T. Morse & Co.	*38,000
NOVEMBER 22.—By the <i>Oceanic</i> =London:	
Poel & Arnold	*34,000
A. T. Morse & Co.	*15,500
William H. Stiles	*11,000
Ed Maurer	*11,500
New York Commercial Co.	*5,500 *77,500
NOVEMBER 23.—By the <i>Mesaba</i> =London:	
Ed Maurer	*11,500
Robinson & Co.	*5,500
James T. Johnstone	*3,500
General Rubber Co.	*7,000
Charles T. Wilson	15,500 43,000

GUTTA-JELUTONG.

POUNDS.

NOVEMBER 16.—By the <i>Katuna</i> =Singapore:	
L. Littlejohn & Co.	350,000
Haebler & Co.	225,000
Wallace L. Gough Co.	150,000
George A. Alden	55,000 780,000

GUTTA-PERCHA.

NOVEMBER 3.—By the <i>President Lincoln</i> =Hamburg:	
Robert Soltau & Co.	8,000

NOVEMBER 10.—By the <i>President Grant</i> =Hamburg:	
Robert Soltau & Co.	13,500

NOVEMBER 16.—By the <i>Katuna</i> =Singapore:	
Haebler & Co.	45,000
L. Littlejohn & Co.	45,000
Poel & Arnold	5,000 95,000

BALATA.

OCTOBER 31.—By the <i>Saramaca</i> =Demerara:	
Ed Maurer	18,000
Middleton & Co.	15,000
Iglesias Lobo & Co.	9,000
Bartling & De Leon	1,500 43,500

NOVEMBER 8.—By the <i>Marowijne</i> =Trinidad:	
Iglesias Lobo & Co.	45,000
G. Amsinck & Co.	22,000
Schlutte Bunemann & Co.	7,000 74,000

NOVEMBER 13.—By the <i>Navarre</i> =Trinidad:	
American Trading Co.	22,500
Iglesias Lobo & Co.	9,000
Ed Maurer	11,000
J. P. Watson Co.	4,500
Frame & Co.	2,500 49,500

NOVEMBER 15.—By the <i>Minnewaska</i> =London:	
Earle Brothers	13,500

NOVEMBER 23.—By the <i>Grenada</i> =Trinidad:	
G. Amsinck & Co.	15,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK OCTOBER.

Imports:	Pounds.	Value.
India-rubber	9,066,090	\$8,109,011
Balata	221,638	146,515
Guayule	596,121	361,351
Gutta-percha	157,755	20,449
Gutta-jelutong (Pontianak)	2,716,522	125,333
Total	12,758,126	\$8,762,659

Exports:

India-rubber	200,196	\$162,647
Balata	6,877	3,177
Guayule	185,311	22,672
Gutta-percha	902,587	\$74,002
Reclaimed rubber	373,923	47,372
Rubber scrap, imported		
Rubber scrap, exported		

BOSTON ARRIVALS.

OCTOBER 19.—By the <i>Jeseric</i> =Singapore:	
Wallace L. Gough Co. (Jelutong)	325,000
State Rubber Co. (Jelutong)	200,000
L. Littlejohn & Co. (Jelutong)	155,000 680,000

OCTOBER 20.—By the <i>Aughan</i> =London:	
Poel & Arnold (African)	4,500

OCTOBER 25.—By the <i>Indradeo</i> =Singapore:	
State Rubber Co. (Jelutong)	240,000

OCTOBER 28.—By the <i>Indrawadi</i> =Singapore:	
Haebler & Co. (Gutta-percha)	30,000

PARA IMPORTS OF INDIA RUBBER, SEPTEMBER, 1911 (IN KILOGRAMS).

EXPORTERS.	NEW YORK.				TOTAL.	EUROPE.				TOTAL.	TOTAL.
	Fine.	Medium.	Coarse.	Cauch.		Fine.	Medium.	Coarse.	Cauch.		
Gruner & Co.	166,024	39,711	163,182	396	369,313	95,269	3,748	6,105	20,119	125,241	494,554
Ad. H. Alden, Limited.	78,925	15,067	80,564	7,667	182,223	81,442	15,815	49,638	8,250	155,145	337,368
Sauarez Hermanos & Co., Limited.						69,091	1,694	20,856	56,945	148,586	148,586
Gordon & Co.	61,032	8,216	45,140		114,388	18,454	3,903	1,186	716	24,259	138,647
R. O. Ahlers & Co.	28,874		2,290	21,405	52,569	2,395		176	3,552	6,123	58,692
Pires, Teixeira & Co.	16,660	1,870	11,220		29,750	15,130		5,940		21,070	50,820
De Lagotellerie & Co.	29,750	4,420	14,190		48,360						48,360
Nunes Sobrinho & Co.	22,780	1,870	3,960		28,610	8,670		2,970		11,980	40,590
Sundries			990		990						990
Itacoatiara, direct						6,540		4,440	142	12,242	12,242
Manãos, direct	507,032	103,434	74,896	5,736	691,098	335,428	56,754	43,298	70,665	506,145	1,197,243
Iquitos, direct	16,088	538	907	12,445	29,978						29,978
Total, September, 1911.	927,165	175,126	397,339	47,649	1,547,279	632,419	83,374	134,609	160,389	1,010,791	2,558,070
Total, August, 1911.	419,044	110,293	376,797	115,523	1,021,857	638,349	65,625	162,053	322,223	1,188,250	2,210,107
Total, July, 1911.	294,212	62,865	347,130	214,267	918,474	599,843	96,127	103,983	335,317	1,135,270	2,053,744



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DECEMBER 1, 1911.

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MARKED ACTIVITY IN BALTIMORE RUBBER.

James Gilbert, of Whitelock street, Baltimore, Maryland, took great pleasure and felt a most justifiable pride in a rubber plant which adorned the front of his house standing eight feet high, and with its containing box weighed 175 pounds. A few nights ago it quietly but completely disappeared. The police of Baltimore are busy on the problem. In Mr. Gilbert's opinion it required at least three men to move his rubber plant. The marked decline in the market quotations of fine Pará, which does not seem able to get very far above the dollar mark, does not appear to have been followed by any decrease in the popularity of the domestic and decorative variety of rubber trees. People who have handsome eight foot plants, thrifty and glossy, standing on the front porch, would do well to chain them to the posts

Antwerp.

RUBBER STATISTICS FOR OCTOBER.

DETAILS.	1911.	1910.	1909.	1908.	1907.
Stocks, Sept. 30., kilos	435,545	580,908	397,454	654,161	719,005
Arrivals in October..	415,263	275,753	265,185	554,756	237,963
Congo sorts.....	355,970	175,101	199,664	487,104	180,366
Other sorts.....	59,293	100,652	65,521	67,652	57,597
Aggregating	850,808	856,661	662,639	1,208,917	956,968
Sales in October.....	272,600	257,887	197,808	546,813	233,152
Stocks, October 31....	578,208	597,774	464,831	662,104	723,816
Arrivals since Jan. 1.	3,601,890	3,305,148	3,836,338	4,217,919	4,302,317
Congo sorts.....	2,706,051	2,525,799	2,858,957	3,583,058	3,656,700
Other sorts.....	895,839	779,349	977,381	634,861	645,617
Sales since Jan. 1....	3,611,994	3,247,884	3,967,242	4,562,709	4,236,685

RUBBER ARRIVALS FROM THE CONGO.

OCTOBER 4, 1911.—By the steamer *Elizabethville*:

Bunge & Co.....	(Société Générale Africaine) kilos	60,000
Do	(Chemins de fer Grands Lacs)	7,400
Do	(Comité Spécial Katanga)	100
Do	(Comptoir Commercial Congolais)	6,300
Do	(Alberta)	650
Do	(Société Forestière & Minière)	42,200
Do	(Cie. du Kasai)	2,100
Société Coloniale Anversoise.....	(Belge du Haut Congo)	2,100
Do	(Cie. du Lomoni)	1,600
Do		5,400
L. & W. Van de Velde,	(Société Comm. and Financ. Africaine)	12,000
Charles Dethier.....	(Société Comm. & Minière)	1,600
Willart Freres		1,200
Comptoir d'Irebu		400
		141,640

October 25.—By the steamer *Leopoldville*:

Bunge & Co.....	(Société Générale Africaine) kilos	90,000
Do	(Chemins de fer Grands Lacs)	9,500
Do	(Société Comm. and Financ. Africaine)	300
Do	(Equatoriale Congolaise)	1,100
Do	(Comptoir Commercial Congolais)	11,000
Société Coloniale Anversoise.....	(Belge du Haut Congo)	600
Do	(Cie. du Kasai)	82,800
Do		6,300
L. & W. Van de Velde	(Société Comm. and Financ. Africaine)	22,000
Do		4,000
Charles Dethier	(American Congo Co.)	4,000
		231,600

THE TWELFTH NATIONAL AUTOMOBILE SHOW.

At the Twelfth National Automobile Show, to be held in Madison Square Garden, New York, for two weeks, beginning with January 7, 1912, the following manufacturers of tires and other rubber goods will have exhibits:

Ajax-Grieb Rubber Co., New York.
 The Batavia Rubber Co., Batavia, New York.
 S. F. Bowser & Co., Fort Wayne, Indiana.
 Consolidated Rubber Tire Co., New York.
 Continental Caoutchouc Co., New York.
 The Diamond Rubber Co., Akron, Ohio.
 Joseph Dixon Crucible Co., Jersey City, New Jersey.
 Empire Tire Co., Trenton, New Jersey.
 Federal Rubber Manufacturing Co., Cudahy, Wisconsin.
 Firestone Tire and Rubber Co., Akron, Ohio.
 Fisk Rubber Co., Chicopee Falls, Massachusetts.
 G & J Tire Co., Indianapolis, Indiana.
 The B. F. Goodrich Co., Akron, Ohio.
 The Goodyear Tire and Rubber Co., Akron, Ohio.
 Hartford Rubber Works Co., Hartford, Connecticut.
 Hodgman Rubber Co., New York.
 J. Ellwood Lee Co., Conshohocken, Pennsylvania.
 Michelin Tire Co., Milltown, New Jersey.
 Morgan & Wright, Detroit, Michigan.
 The Motz Clincher Tire and Rubber Co., Akron, Ohio.
 The Pantasote Co., New York.
 Republic Rubber Co., Youngstown, Ohio.
 Seamless Rubber Co., New Haven, Connecticut.
 C. A. Shaler Co., Waupun, Wisconsin.
 The Stein Double Cushion Tire Co., Akron, Ohio.
 Swinehart Tire and Rubber Co., Akron, Ohio.
 United Rim Co., Akron, Ohio.
 Voorhees Rubber Manufacturing Co., Jersey City, New Jersey.

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MARK IS STAMPED ON
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INDIA RUBBER WORLD

BOUTCLOUC

HEVEA BRASILIENSIS

DICHOPSIS GUTTA

GUTTA-PERCHA

Edited by HENRY C. PEARSON—Offices, No. 15 West 38th Street, NEW YORK.

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JANUARY 1, 1912.

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 The Berlin Rubber Manufacturing Co., Limited, Berlin, Ont.
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The accompanying illustration shows Bristol's Outdoor Atmospheric Recording Thermometer including the Recording Instrument which is installed indoors and the sensitive bulb in lattice box which is installed outdoors.

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THE BRISTOL COMPANY, Waterbury, Conn.

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LOOKING BACK AT 1911.

THE past year, during which THE INDIA RUBBER WORLD completed its twenty-second year of continuous publication, has been one of exceptional industry in and about our office, for it has been a busy year in the whole rubber world and we have no thought of lagging behind. During the twelve months ending with our December issue we gave our readers 562 pages of carefully prepared, and we trust informing and valuable, reading matter covering every phase of the rubber industry. This is over 100 pages more reading than we printed in 1910, or in any preceding year.

It is hardly necessary to refer in detail to the contents of these 562 pages, but it may not be improper to make special mention of the notably comprehensive description which appeared in our August issue of the great rubber exposition held in London in June and July, and also of the series of eight letters by the editor on rubber conditions in Dutch and British Guiana, giving the result of his observations during several months of travel in those

interesting but to most rubber men unfamiliar countries.

Two events occurred during the year, one of minor importance and the other of great moment to this publication. The first event referred to was the moving of our offices from the downtown to the new uptown business center of New York. Our new quarters are in the heart of the new commercial district of the metropolis, close to the great hotels where our out-of-town friends would naturally take up their abode while in this city, and within two short blocks of that limitless repository of information, the palatial Public Library, from whose stores we expect liberally to draw, and to whose fund of information we hope modestly to add. We do not assert that it is owing at all to our example, nor due primarily to the desire to be in our immediate vicinity, but it is interesting to note that the greatest of American rubber corporations has announced that it also will soon desert its downtown location and move into its own marble skyscraper even further uptown.

The other event of the past year that affected this office, and affected it deeply, was the sad taking off of Mr. Hill, for many years the associate editor of THE INDIA RUBBER WORLD. This blow came most unexpectedly, early in February, and inflicted an incalculable loss upon this publication. For twenty-one years he had stored his wonderfully retentive memory with a fund of information bearing upon every conceivable phase of the rubber industry, which reposed in his orderly mind ready to be drawn on and used at a moment's notice. Few men have ever possessed such a store of knowledge pertaining to any industry or been able to put it to such instant and effective use.

In the rubber world at large events have been on the move, some moving rapidly, some more slowly, but on the whole showing marked progress. Rubber planting has gone on with great strides and one specially significant incident has been the purchase on the part of many rubber manufacturers of tracts of land for their own rubber plantations. The product of rubber plantations during the past year has been about double that of the year before. The shipments from the Amazon country have remained about the same as in 1910.

Crude rubber prices declined during the first six months and have been fairly stable during the last six months, being highest in March, when Upriver fine sold at \$1.68, and lowest in June, when the same quality dipped to 94 cents.

In the manufacturing field the year has been one of average activity in most departments, while in the case

of tires, night shifts have been the rule in all factories of repute and standing. Tire exports for the first time have exceeded the two million dollar mark, and have equalled the total value of all automobile exports six years ago, including tires and all accessories. The dread fear so often expressed that the country was full of people who had mortgaged their last possession to own a car, and that they were bound to be swept into insolvency in shoals, their touring outfit be put under the sheriff's hammer, and the whole automobile industry be badly frost-bitten, has not materialized; for the cry for cars and tires is louder than ever.

Footwear has not been as brisk as its makers would have liked, nor have mechanical goods experienced any noteworthy boom, but taking the year all in all its rubber products will amount in the United States to two hundred million dollars, which is five times the value of our rubber products twenty years ago.

Going abroad, the great rubber event of the year was the Second International Rubber Exhibition, held in London in June and July—an unqualified, one might say, a gigantic success, and a great influence for rubber progress all over the world—albeit no one was found who, in the opinion of the committee, merited the silver trophy offered by THE INDIA RUBBER WORLD for the best system of extracting latex from the *Castilloa elastica*. However, the cup is still there intact and untarnished and somebody will yet devise a method of *Castilloa* extraction that will meet with the approval of the judges.

The old search for synthetic rubber has met with substantial reward—scientifically, if not monetarily. At any rate enough progress has been made to encourage still further effort.

In regard to general business conditions in the United States, they are distinctly brighter now than they were three months ago. Then, owing to the inglorious rejection by Canada of the reciprocity treaty, the zealous pursuit of "bad trusts" and apparently of some good trusts, too, by the government, the leaders in large commercial enterprises were greatly perplexed as to what course to pursue. To be sure the tariff still hangs like a cloud in the business sky, but there is no longer a fear that the administration will harass an enterprise simply because of its size, and there is without question a more general inclination to look on the bright side than there was a short while ago. That there will be any pronounced business boom with a new presidential adjustment only a few months away is, of course, most improbable, but a dominant note of "Cheer up! the worst is over!" pervades the air.

PLAUSIBLE PESSIMISM.

THERE are many rubber prophets in these days of plantation statistics, and their utterances are of a certain value. Figures may not lie when they relate to things of the past, but when they deal with futures they may deceive disastrously. In rubber manufacture, rubber markets and rubber production, the unexpected has been happening so constantly for years past that it should give the most self-assured predictors an occasional qualm of doubt. We know, to be sure, how wonderfully planted rubber in the Middle East has "made good." We can estimate increases in production as the plantations have matured, and so far are on solid ground. But suppose that the system of tapping followed so far suddenly proves a detriment to the tree, and it demands a rest? Wild *Heveas* that have not been bled half so thoroughly, that have enjoyed months of rest, where the cultivated prototype gets only days, lessen their flow and go almost dry—not often, but sometimes. May this not happen on a large scale where the trees are forced to yield their very last drop? Or may not jealous nature suddenly outwit the vigilant scientists who are ever on the watch for leaf, root and bark disease and send some virulent scourge that shall wipe out *Hevea* in its new home? This is not to alarm the rubber investor; it is not to bull the rubber market; it is not even to cheer the Brazilian—it is simply to point to the utter fallacy of quoting figures of production three, four and five years ahead. In rubber as in no other commodity the unexpected always happens. So, if we expect plantation disaster, and a sudden blow to planting—it may not happen.

THE DUTY ON RUBBER WASTE.

AN interesting decision was recently rendered by the board of the United States General Appraisers in the case of a Philadelphia importer of waste rubber, who claimed free entry for a certain importation under paragraph 591 of the Payne-Aldrich Tariff Act, which enters rubber waste free where it has been "worn out by use." The chief witness for the importer described a certain part of the merchandise as consisting of rubber shavings produced in the manufacture of certain hard rubber articles. The board decided that the importation was dutiable at 10 per cent. ad valorem, under paragraph 479. "We are of the opinion," said the board, "that the testimony fails to show satisfactorily that the waste rubber in ques-

tion has been worn out by use, and even in the event of a certain portion of the importation being of that class, the claim of the importers could not be entertained for the reason that they did not segregate the two grades of the merchandise or show by competent testimony the relative proportion of each grade."

Under this decision it would appear that if an importer wishes to enter rubber waste free, he must separate the waste which has been "worn out by use" from waste that cannot be so described. He can then secure free entry for the former class, and for that only.

PATENTS AND THE RESTRAINT OF TRADE.

THE decision of the United States Circuit Court at Baltimore in the suit brought against the corporation usually known as the "bath tub trust," is exceedingly interesting in that it brings to the front the use of the patent law as employed to control the sale of certain commodities.

It appears that the bath tub combination sought to control the market on certain bath tubs by reason of the fact that it had entered into an agreement with the patentee of a device called an "enamel dredger," which was used in the making of these tubs. The court in deciding that this was an illegal combination in restraint of trade, took this ground: "A patent is a grant of a right to exclude all others from making, selling, or using the invention covered by it. It does not give the right to the patentee to sell indulgencies to violate the law of the land, be it the Sherman Act or any other." It took the ground that while the law gave to the inventor the right to monopolize that invention for a certain length of time, it did not give to the patentee "the right to monopolize anything else," saying that the patentee may not restrain trade or attempt to monopolize it in anything except that which is covered by his patent.

Whatever the ultimate legal decision may be on this matter, to the ordinary layman the question would not appear one difficult of solution. If the device or tool covered by the patent is one that is absolutely essential to the manufacture of certain goods and without the use of which they could not be made, it would certainly appear that the law giving to the inventor or his assigns, a monopoly on that particular device must necessarily include the monopoly of the goods which cannot be manufactured except through the use

of that device; but if these goods can be manufactured in some other way, even though the use of this patented device would make it easier and cheaper to produce them, then it would appear to be good reasoning that the manufacture and sale of these goods could not be legally controlled by a concern simply because of its ownership of a certain valuable but non-essential patent.

THE EMPLOYER'S RESPONSIBILITY.

AN estimable technical contemporary, published in London, deeply deplores the great mass of legislation which has lately been passed by the English Parliament tending to lighten the burdens of the workman, with the attendant result in many cases of increasing, to some extent, at least, the burden of the employer. It refers particularly to the Workmen's Compensation Act and the National Insurance Bill. In comparing the old system, under which the amount of liability assumed by the employer in the case of a workman's disability was almost entirely voluntary, with the present system of legal enforcement of the employer's liability it remarks:

"Take the Workmen's Compensation Act. Compare the position of the workman employed by a humane employer fifteen years ago and the position of a similar workman today. Suppose him injured and placed on the sick list. On pay day the employer would most likely say, 'We had better send Tom his wages. Poor chap, he has a wife and family to keep!' And the result? Realizing that he was being kindly treated, Tom would try to get back to work as soon as possible. If unable to do his regular job, he would clean out the yard or assist as best he could. But now, if Tom goes under, it is the hard-hearted insurance company that he has to deal with. He gets half his wages; is encouraged to believe that he will continue to get half wages so long as he is ill, and, getting to like an idle life, he hangs about and becomes a worthless malingerer."

This is an interesting picture, and its deductions would undoubtedly be fairly sound provided all employers were humane and inclined to regard their workmen with benevolent sympathy. Probably the great majority of employers may be so described, but if there are some who are otherwise and would yield to the workman only that which he could legally exact, it is obvious that the passing of laws making it obligatory for such employers to recognize their responsi-

bility towards their employes is thoroughly in line with our best social development.

During the last two years a great deal of legislation has been enacted in the various states, particularly in the Eastern manufacturing states, looking to the betterment of the workman's condition. Many such laws have been passed in the state of New York, and, according to reports of the State Commission of Labor, the condition of factory workers during the last decade has vastly improved.

A number of state commissions and bureaus have been appointed to investigate various phases of labor in factories, and they have performed a great amount of useful work: For instance, the Bureau of Mediation and Arbitration, which has succeeded in effecting the peaceful and satisfactory settlement of many disputes. Again, there is the American Museum of Safety, whose object it is to investigate carefully the causes of accidents, to discover and demonstrate means of prevention. In many other ways the legislature of New York during recent years has worked for the lightening of the workman's load. If some part of this burden has been shifted to the employer's shoulders, it is open to question if any considerable number of employers have seriously objected. Many of them undoubtedly share the feeling of one large manufacturer, who recently said:

"Let them legislate to make better conditions for the workers. Wise legislation in that direction is a grand thing. The more comfortable my employes are, the better they are protected, the more and better work they will do. My efforts are to keep ahead of the legislature, but if they can point the way to improve still further I shall be glad to follow."

The interdependence of capital and labor, and, in fact, of all members of our social structure, is now so thoroughly recognized that every man, employer or not, who views our American life in anything but the narrowest way must welcome all reasonable legislative enactments that tend to improve the condition of any considerable number of people.

WHAT A FEW YEARS HAVE WROUGHT.

THE Department of Commerce and Labor has recently published a few statistics which give in the most condensed form a graphic picture of the marvelous changes that have taken place in this country in a little over a century. The figures given cover the period be-

tween 1800 and 1911. In 1800 the area of continental United States was 843,255 square miles, in 1911 the area was, and in fact has been ever since 1853, 3,026,789 square miles. The population since 1800 has increased from 5½ million to 93¾ million; the money in circulation from \$26,500,000 to \$3,228,627,002 and the per capita circulation from \$4.99 to \$34.35. Exports have increased from \$32,000,000 in value to over \$2,000,000,000 and imports from \$91,000,000 to \$1,500,000,000. And all this has happened within a space of time barely more than the span of a human life.

THE HUMANITARIANISM OF THE MOTOR-CAR.

IN addition to the incalculable value of the motor-car commercially, it has another and very obvious advantage in its humanitarianism. This is a phase that is brought home anew to every observing person at the coming of the first winter snow storm. The smooth asphalt pavement, so much in vogue in many of our cities, is at best an atrocious device for the discomfort and distress and disabling of that faithful fellow, the horse; but add to it a fall of snow, which, as is usually the case in city streets, first melts, then freezes and melts again, what earthly chance have the horses? On avenue and street you see them sliding, slipping, falling, lying helpless on the slippery pavement, or struggling to regain an impossible footing. To any human being of even the slightest humane instinct, it is a distressing sight; to the horse it means bruises and broken bones. And while one watches this spectacle, multiplied ten thousand times over in a large city, one cannot help noticing how easily and comfortably and efficiently the motor car rolls by, its rubber tires gripping the slippery asphalt, and riding easily over the snow and ice. Viewed from the humanitarian standpoint, it certainly will be a great relief when the last draft horse has disappeared from city streets and the trucking industry is turned over exclusively to the motor-car.

HENRY C. PEARSON, editor of THE INDIA RUBBER WORLD, sailed December 18 on the *Coppename* of the Royal Dutch West India Mail, with the expectation of passing the winter in the tropics, his objective point being the valley of the Orinoco. It is a pleasure to announce that his observations in the rubber country will be embodied in a series of letters, illustrated as heretofore with photographs of the scenes described.

CENSUS FIGURES OF THE RUBBER INDUSTRY.

While a special bulletin affecting the rubber industry, as shown by the census of 1909, has not yet been issued, the subjoined preliminary details, specially furnished to THE INDIA RUBBER WORLD by the Director of the Census, will be found of interest, as demonstrating the expansion of that branch since 1904.

One of the most salient points of this return is the increase of capital as compared with 1904, of more than 60 per cent., while the aggregate value of products has only advanced by about 27 per cent. While this result by itself implies a smaller return upon capital invested, that fact is further illustrated by analyzing the figures of "value added by manufacture":

	1904.	1909.
Cost of materials used.....	\$80,002,476	\$122,745,102
Value added by manufacture.....	75,012,915	74,649,536
Total value of products.....	\$155,015,391	\$197,394,638

Thus an increase of about \$42,000,000 in the total value of products is more than offset by the higher amount of nearly \$43,000,000 paid for raw materials. Consequently, the rubber industry in 1909 treated \$123,000,000 worth of raw materials with an increase of selling value through manufacture of a slightly less amount than had accrued in 1904 upon \$80,000,000 worth.

That this increase of business has been accompanied by diminished profits may be further accentuated by a comparison of general results for 1904 and 1909:

	1909.	1904.
Cost of materials used.....	\$122,745,102	\$80,002,476
Salaries	7,840,700	4,538,912
Wages	25,136,976	20,084,166
Miscellaneous expenses	16,360,993	11,303,336
Principal elements of cost.....	\$172,083,771	\$115,928,890
Estimated difference	25,310,867	39,086,501
Selling value of products.....	\$197,394,638	\$155,015,391
Capital	162,144,564	98,979,636

While the above difference is not officially shown, it is an obvious deduction from the preceding figures, and includes the profit on the operations, as well as interest on capital, conducted during the respective years. It is, in fact, the only source of such profit. That this margin was in 1904 about \$39,000,000 upon an estimated cost of \$116,000,000 (about 33 per cent.) and had fallen in 1909 to \$25,000,000 upon \$172,000,000 (about 15 per cent.), is in harmony with the expense of the industry at large as to the recent shrinkage of manufacturing profits. A falling off in margin of \$14,000,000 in conjunction with an increase of capital by \$64,000,000 shows that the rubber industry in 1909 was making considerably less profit than was the case in 1904.

Other interesting comparisons are deducible from the official figures. In 1904 the proportion of cost of materials to value of product was about 52 per cent., while in 1909 it had risen to 62 per cent. The average number of workers employed rose about 12 per cent., and their average earnings 25 per cent. In conjunction with the 27 per cent. increase of production, these figures would indicate the greater productiveness of individual workers, while the development of existing plants rather than the starting of new ones is shown by the respective numbers of establishments having been 265 for 1904 and only 267 for 1909.

The detailed figures are as follows:

THE RUBBER INDUSTRY—RUBBER BELTING AND HOSE, RUBBER BOOTS AND SHOES, AND RUBBER GOODS NOT ELSEWHERE SPECIFIED, COMBINED, 1909 AND 1904.

	Census. 1909.	1904.
Number of establishments.....	267	265
Capital	\$162,144,564	\$98,979,636
Cost of materials used.....	122,745,102	80,002,476
Salaries	7,840,700	4,538,912
Wages	25,136,976	20,084,166
Miscellaneous expenses	16,360,993	11,303,336
Value of products	197,394,638	155,015,391
Value added by manufacture (products, less cost of materials.....)	74,649,536	75,012,915
Employees:		
Number of salaried officials and clerks	6,692	3,698
Average number of wage-earners employed during the year.....	49,264	43,873
Primary horsepower	122,436	86,808
Separate figures of 1909 products are:		
Belting and hose, rubber.....		\$19,238,324
Boots and shoes		49,720,557
Rubber goods not elsewhere specified.....		128,435,747
		\$197,394,628

In the above statement is included the value of all products of establishment reported as manufacturing rubber goods as their chief product. The classification of "rubber goods not elsewhere specified" includes the manufacture of rubber tires, elastic webbing, rubber clothing, mats, etc.

With reference to the augmentation of 27 per cent. in value of products, it is of interest to note that while there has been an increase of about 12½ per cent. in the number of wage-earners, and of 25 per cent. in their earnings, the number of salaried officials and clerks has risen by more than 80 per cent., and their total remuneration by nearly 75 per cent.

In addition to the above named output, it has been possible thus far to identify a certain amount of products, consisting in part or wholly of rubber, manufactured by establishments engaged in other branches of industry. The total value of such products amounted to \$1,059,361. Hence the production of rubber goods seems to be practically confined to houses making a specialty of that branch of manufacture.

PROPOSED CHANGES IN GOVERNMENT RUBBER SPECIFICATIONS.

The limitation imposed by official specifications of Fine Upriver Pará in the supply of rubber manufactures to the United States government, has prevented the use for that purpose of other standard descriptions. Fine Pará now constitutes only 20 per cent. of the world's supply, and in view of the prospective increase in the yield of plantation rubber, will in a few years probably represent only 10 per cent., which fact was brought before the Washington authorities on December 15 at a conference between them and a committee representing the rubber manufacturers interested.

It is understood that among the practical steps to be taken are an exchange of data and the formulation of recommendations, to be submitted, with the approval of all manufacturers, to the committee representing the government. A joint committee, which will be fourteen in number, seven in each of the interests represented, will carry out the plans outlined at the conference.

Uniform Tests for Rubber Products.

IN a circular addressed to the German rubber industry, the Gross-Lichterfelde Material Testing Bureau has elaborated a plan for the application to rubber products of tests, similar in principle to those which have been adopted for paper, lubricants and cement. This plan, it is remarked, depends for its success upon the co-operation of rubber manufacturers and consumers, following the general ideas outlined in the INDIA RUBBER WORLD in the issues of October 1, 1911 (page 23) and December 1, 1911 (page 107).

With this view it is proposed to carry out, from old and new standpoints, a series of tests upon various standard compounds of soft rubber. The principal object will be to investigate the processes already in use and if necessary to supplement them with due regard to practical conditions. For this purpose it will be necessary for the Bureau, in the first place, to test as many compounds as possible; then discussing the results with representatives of the various factories, in order (as was the case with paper) to arrive at generally recognized and uniform methods of testing.

As the preparation of the samples for testing could not be fully carried out in the laboratory of the Bureau, and would take too long, it is considered preferable for these samples to be prepared in the regular course of factory operation. The Bureau therefore requests the support of the German rubber industry in the form of the necessary samples. As far as can be foreseen, the results of the contemplated trials will be of considerable advantage to the rubber industry, while also promoting in a general way the development of mechanical testing, in perfecting which the most diverse technical circles are interested. Special attention is directed to the confidential nature of these tests and to the official secrecy which will attend their detailed operation. In the subsequent publication of results care will be taken to prevent the interests of the various rubber factories from suffering, the names of the manufacturers not appearing in connection with the samples tested.

METHODS OF TESTING.

The plan of testing includes tests for rupture, pressure, wear, durability, hardness and elasticity.

Under the head of rupture, tests will be made as soon as possible of ten ring samples, with measurements of extension, the appearances of hysteresis being recorded as to some of the samples. Ten further tests will be made with ring samples which have been subjected to preliminary tests in the Martens extension machine. Another series of rupture tests will deal with the condition (1) (five tests) after the samples have been kept a year, without special protection from light, and (2) (fifteen tests) after being subjected to an accelerated process of ageing, during one to eight days, at a dry heat of 150 deg. F.

Tests of pressure, twelve in number, will be made with rubber cylinders in a press on the Martens system, change of form and elasticity in conjunction with pressure being thus defined.

Tests for wear, three each, will be made with balls of 1 1-5 inches diameter by an apparatus on the Martens system, and with rings by an apparatus on the Mai system. A third test of the waste discs resulting from the stamping out of the rings is being at present studied.

Tests for durability will be made in two forms, with four rings on the Martens-Schopper durability testing machine, and with ring samples stretched upon glass plates, conditions being observed in a room and in the open air, as well as under dry and moist heat.

Tests for hardness will be made with the Brinell-Martens

ball tester, while tests for elasticity would be probably made with a new apparatus still to be tried.

SAMPLES FOR TESTING.

For the carrying out of the proposed tests there would be required of each description of rubber to be tested:

- a. 1 sheet of rubber, $\frac{1}{4}$ inch thick, 24 inches long, 24 inches wide;
- b. 12 rubber cylinders of 2-5 inch diameter and 2-5 inch height;
- c. 5 rubber balls of 1 1-5 inches diameter.

The samples a to c are to be molded out of the same compound in one operation and to be vulcanized under similar conditions. The vulcanization should be effected as far as possible in the same apparatus, but in any case at the same temperature and with equal duration. The separate plates should be as far as possible uniform in thickness, with a smooth surface, free from blisters, while the cylinders must have smooth surfaces and clean edges. The balls must be special, with a smooth and regular surface.

When samples are sent in, the date of vulcanization is to be given. They should be sent, as far as possible, immediately after manufacture, so that they may be tested under approximately uniform conditions. The samples should only be prepared as soon as a request for same is made by the Bureau, to prevent the accumulation of samples waiting to be tested. The sheets ought not to be rolled but packed in cardboard.

QUESTIONS TO MANUFACTURERS.

To facilitate the work of the Bureau and to enable it to call for the necessary samples, a sheet of questions accompanies this circular, in connection with which the respective manufacturers are requested to indicate the classes of rubber goods they make, and of which they can furnish samples in accordance with the above specifications, indicating in every case the origin of the crude rubber used.

Subjoined is the classification of the various branches of the industry, in accordance with which the replies of the various manufacturers are to be given:

1. Hose for technical and laboratory purposes (excepting pneumatic hose).
2. Parts of valves.
3. Buffers.
4. Parts of packings.
5. Tires. a. Solid. b. Pneumatic. c. Covers.
6. Insulating materials (cable coverings, etc.).
7. Rubber driving belts.
8. Rubber transport belts.
9. Rubber rolls.
10. Roller cloths.
11. Rubber thread.
12. Rubberized fabrics.
13. Floor tiling.
14. Rubber stoppers.
15. Rubber compounds for surgical articles.
16. Rubber compounds for other purposes not specified.

REGULAR QUALITIES TO BE SAMPLED.

Particular stress is laid upon the fact that in the interest of the most advantageous utilization of the results of the tests, considerable importance attaches to the samples not being from specially prepared compounds, but that they should represent the compounds regularly used in the manufacture of the articles indicated by the respective manufacturers as constituting their products. Only in this way can the comprehensive work of the bureau produce the anticipated results.

United States Statistics of Malayan Rubber Growing.

RECOGNIZING the importance to the American rubber and kindred industries of full and detailed information as to the development of rubber culture in the Malay States, a systematic investigation of the whole question has lately been made by the United States Government. This difficult task has been ably carried out by Mr. D. Milton Figart, United States Vice-Consul General in charge at Singapore, who has compiled a report covering the four years 1907-1910, which (though not yet published) THE INDIA RUBBER WORLD, has by the courtesy of the Bureau of Manufactures, Department of Commerce and Labor, had an opportunity of examining, and of which the leading features are reproduced below.

The report includes (1) rubber acreage, yield and production; (2) cost of development per acre and of production per pound. Other points touched upon are (3) comparative quality of product, probable output, market value and dividends; while (4), labor, diseases and other important points likewise receive attention. Appealing, as it does, alike to the rubber manufacturer and to the economic student, this skilfully compiled report amply repays perusal.

Dealing with the history of the "rubber boom," which occurred within the last year covered by the report, Mr. Figart refers to the inherent soundness of the rubber trade, as being demonstrated by the relatively small number of failures, which marked the subsequent decline in values.

MALAYAN ACREAGE AND PRODUCT.

Taking the first and last of the four years dealt with, the total rubber acreage of Malaya rose from 179,227 acres in 1907 to 362,853 in 1910, thus having more than doubled within the period in question. That the grand total of production increased from 2,278,870 pounds in 1907 to 14,368,863 pounds in 1910, would show the largely augmented productiveness of Malaya as the result of methodical and scientific rubber cultivation.

The acreage planted on December 31, 1910 (362,853 acres) represented 632 estates (as compared with 534 a year earlier) with an acreage of 292,033. Of the 1910 acreage about one-fifth had been planted during that year, while the plantings of 1909 only represented 15 per cent. of the total cultivated acreage at the end of that period.

Ceylon, while producing in 1910 more than six times as much rubber as in 1907, had a much smaller quantity to start with. Consequently the excess in the Malayan yield, as compared with that of Ceylon now amounts to about 11,000,000 pounds, as illustrated by the following comparison:

	1907.	1910.
	Pounds.	Pounds.
Malaya.....	2,278,870	14,368,863
Ceylon.....	556,080	3,298,652

COMPARATIVE ACREAGE IN THE FAR EAST.

Much interest attaches to the following details of the present rubber acreage in various Asiatic countries:

RUBBER ACREAGE. 1910.

Malaya	362,853
Ceylon	241,885
Netherlands Indies	150,000
Burma	13,525

Cochin China	11,000
South India	30,000

Total acres, 1910..... 809,263

From a comparison of this table with the figures already quoted, it would seem that Malaya, with 362,853 acres, produced in 1910 14,368,863 pounds, while Ceylon, with 241,885 acres, only produced 3,298,652 pounds.

COST OF DEVELOPMENT PER ACRE.

Following the above important statistical facts, is a valuable estimate prepared by Mr. C. M. Cumming, manager of Linggi Plantation, Limited, Selangor, of the cost of opening up a rubber plantation of 1,000 acres (250 acres each year) including 10 per cent. for contingencies. The cost is estimated as representing: First year, \$19,681; second year, \$18,588; third year, \$22,649; fourth year, \$33,902; fifth year, \$26,741; sixth year, \$27,053; seventh year, \$31,240. The total cost (without interest) would thus far be \$179,854, but striking off respectively one-eighth, one-third and five-eighths for the last three years, the amount would be reduced to \$147,969, or approximately (as Mr. Figart states) \$150 per acre.

Taking the principal items of gross expenses for the first and seventh years, the following results will be shown:

	1st year.	7th year.
Premium and survey	\$2,272	—
Clearing 250 acres	2,130	....
Planting 250 acres	852	....
Plants and seeds	1,136	....
Bungalow	1,704	....
Hospital, etc.	1,704	....
Rent	568	2,272
Superintendence	2,272	4,260
Weeding	1,278	8,520
Machinery .....	....	5,680
Other expenses	3,976	7,668
	17,892	28,400
Contingencies, 10 per cent.	1,789	2,840
	\$19,681	\$31,240

The estimate of \$150 an acre, it will be remembered, is arrived at in conjunction with five-eighths of the amount of the expenses for the seventh year, being charged to revenue.

YIELD PER ACRE.

According to the estimate of prominent planters, the annual yields per acre may be counted as follows:

	Pounds.
Fifth year	50
Sixth year	150/188
Seventh year	250/281
Eighth year	350/381
Ninth year	400/494
Tenth year	400/577
Eleventh year	400/633

While well managed estates have been producing from 500 to 800 pounds of rubber per acre, it is remarked that in many cases these figures will not be reached. At the same time, it is added, these conservative estimates will probably be greatly exceeded, if tapping is delayed until the proper period has elapsed, and is then carried on in the most scientific manner.

ESTIMATED RESULTS AT FIFTH AND TWELFTH YEARS.

In *pro-forma* calculations given of prospective annual results from the fifth to the twelfth year, the lowest of the above estimates of quantity is used as a basis of calculation.

The scope and general features of the above-named calculations are illustrated by the following estimates, applicable to an estate of 1,000 acres:

Fifth year—250 acres at 50 lbs. per annum=12,500	
lbs. at \$0.72 per lb.....	\$9,000
Less cost of production at \$0.48 per lb.....	6,000
(Estimated result)	\$3,000
Twelfth year 1,000 acres at 400 lbs. per annum =	
400,000 lbs. at \$0.72 per lb.....	\$288,000
Less cost of production at \$0.36 per lb.....	144,000
(Estimated result)	\$144,000

COST OF PRODUCTION PER POUND.

As to this crucial point, it is stated that the average cost per pound, for 33 estates taken indiscriminately, equalled 1s. 2½d. or \$0.29. This average, it is noted, is on a basis including young trees. That in the estimates of results just referred to, the cost of production is figured at 36 cents, is in harmony with the conservative nature of Mr. Figart's other calculations.

COMPARATIVE QUALITY OF PRODUCT.

On this subject Mr. Figart makes the following recommendation:

"Plantation rubber, while superior to fine hard Pará in resinous and mineral tests, has generally proved inferior in strength, and more care must be taken in working it up, to prevent a soft product resulting. Recent tests, however, have been more satisfactory; and with improved methods in cultivating, collecting, coagulating and preparing (plantation) rubber, it is confidently expected that the future product will approximate fine hard Pará in every important test."

PROBABLE OUTPUT.

Mr. Figart's view, that nothing definite can be said about the probable output of rubber, is a statement of importance. At the same time, he quotes the subjoined estimates of two prominent rubber men, which are very close to each other, which he characterizes being "as good estimates as can be obtained":

Production, 1910.

Malaya alone	14,368,863 lbs. (or about) 6450 tons
Ceylon alone	3,298,652 " " 1450 "

Total Far East..... 17,667,515 " " 7900 "

Estimate No. 1 (Malaya alone).

	Tons.
1910	6,450
1911	11,000
1912	18,000
1913	24,000
1914	33,000
1915	45,000
1916	65,000

Estimate No. 2 (for total Far East).

1910	7,900
1911	16,000-17,000
1912	25,000-30,000
1913	40,000-45,000
1914	55,000-60,000
1915	70,000

When figures in respect to Ceylon the Netherlands Indies,

Burma, etc., are added to those from Malaya in estimate No. 1, the result will be very close to that shown by the second estimate.

MARKET VALUE AND DIVIDENDS.

In connection with these points Mr. Figart remarks that the following conditions may be assumed:—

COST OF PRODUCTION, 36 cents per pound; (some estates now turning out rubber for less than 24 cents.)

SELLING PRICE, 2 shillings, or 48 cents.

PROFIT, 12 cents per pound.

On the basis of the two estimates previously referred to of 400 and 577 pounds per acre for ten-year-old trees, it is calculated that the profit per acre would be respectively \$48 and \$69. Taking even the lower figure, it is shown that in the cases of seven estates chosen indiscriminately, the profit would represent for original investors from 17.4 per cent. to 61.5 per cent., while on the present high market values, the shares would pay from 2.6 per cent. to 6 per cent. These results, it is urged, show the sound basis of the industry, even with appreciated share values.

LABOR.

A constant increase is recorded in the arrivals of Chinese immigrants at both Singapore and Penang; the number landed at the former port in 1910 having been 216,321, as against 151,752 for 1909. The number arriving at Penang was 59,414; being 37 per cent. in excess of that recorded for the previous year. It being calculated that by 1920 there may perhaps be a million acres of rubber trees in Malaya, as compared with about one-third that area at present under cultivation, this possible three-fold increase would necessitate a labor force of 600,000 to 700,000 coolies, against the 200,000 at which the present number has been estimated. The prospective increased cost of the coolie labor required to meet the needs of the estates is a factor to which Mr. Figart calls attention, as possibly enhancing the cost of Malayan rubber production.

CROPS.

A distinction as to accessory crops is drawn between catch-crops and cover crops. The former description is grown for the purpose of getting revenue, during the first four or five years, up to the time when the rubber is at the producing stage, but agriculturally they are not to be recommended. In the Federated Malay States, less than 6 per cent. of the rubber acreage was planted in 1910 with catch crops (principally coffee), as against 10 per cent. in 1909, while in the Straits Settlements the percentage was only 28 per cent., as compared with 40 per cent. for the previous year.

Cover-crops are planted between rubber, at present chiefly with the object of reducing the expenditure on weeding. Mr. Figart remarks that no cover-crop can be unconditionally recommended in Malayan plantations; considering the best procedure at present to be absolute clean weeding. He adds that if a leguminous and easily controlled cover crop were introduced, it might be preferable even to clean weeding, particularly if it paid the cost of its own production.

RUBBER SEED OIL AND POONAC.

Although experiments in crushing rubber seeds for the oil and residual poonac have so far been without satisfactory results, recommendations have been sent to planters to instal machinery suitable for the purposes named, so as to continue trials in the direction indicated.

DETAILS OF PLANTATION EXPENDITURE.

In a detailed appendix, the work of Mr. C. C. Malet, formerly connected with the Agriculture Department of the Belgian Congo, and at present a licensed valuator in the Straits Settlements, full *pro-forma* particulars are shown of the various elements of cost of rubber production on a thousand acre estate, on the basis of

400 pounds per acre, and an average per acre of about 120 trees. The cost of production is quoted as a fraction under 26 cents per pound for the estimated annual product of 400,000 pounds.

THE FUTURE OF RUBBER.

Mr. Figart's views on the general situation of rubber are so broad and far seeing that they may with advantage be quoted literally:

"Considerable thought is being given to the question of whether the future plantation rubber industry will be much affected by the wild rubber supply. The present cost of marketing wild rubber is higher than the cost of producing plantation rubber, and with the large quantities of the latter coming on the market in a few years' time (possibly 100,000 to 150,000 tons), there will be a strong tendency in the direction of reducing the supply of wild rubber which can be marketed at a profit. Realizing this, the Brazilian Government is taking steps which will make possible a material reduction in the cost of collecting wild rubber. However, it is the general opinion of manufacturers that the new uses to which rubber will be devoted will absorb the visible supply, and maintain prices at a figure which will allow a liberal margin of profit to investors in plantation rubber. This fact is evidenced by the investment in the Orient of millions of dollars in this industry by a group of American capitalists, but a small percentage of whose holdings is planted and none of which are in bearing."

One planter has the following to say:

"When the output from the plantations (say 1,000,000 to 1,200,000 acres in more or less full bearing by 1920-22) amounts to over 200,000 tons per year, then, in order to sell this huge output, the price must be reduced so low that many new channels of consumption will be opened up, which means a probable average price of, say, 30 cents per pound at which price it is not at present conceivable that fine hard Pará can be profitably collected even under the best of circumstances."

"The above is of course based on a much lower cost of production than the writer has used in this article."

While it has only been possible to reproduce some of the most prominent features, the above summary indicates the leading points of the report, and shows the vast amount of preparation and skilful compilation undertaken by Mr. Figart and his colleagues.

THE NETHERLANDS AND THE LATE RUBBER EXHIBITION.

FOLLOWING up the successful participation of the country in the First Rubber Exhibition of 1908, the Netherlands took a prominent part in the Second Exhibition, held in London from June 26 to July 14 last.

As reported in the August issue of THE INDIA RUBBER WORLD, a strong and representative committee of leading men in both the theoretical and practical ends of the Netherlands rubber industry supported the efforts of the honorary and acting presidents, as well as of Dr. Tromp de Haas, commissioner for the Dutch East Indies. Other committees were formed in Java and Dutch Guiana, which co-operated with the European committee.

In a review of the exhibition, entitled "Verslag over de Internationale Rubber-Tentoonstelling," dated at Scheveningen, October, 1911, Mr. A. G. N. Swart, president of the Netherlands Commission, calls attention in the first place to the important preparatory work undertaken by the Commission. In the fall of 1910 a circular was addressed to the Surinam balata industry, urging participation in the exposition, which step was followed up by similar efforts as to the Dutch East Indies.

Among various facts of interest affecting the exhibition, it is recorded that the Netherlands section was in two divisions, respectively 65 x 75 feet and 35 x 35 feet. The arrangements and decorations of the section were so designed as to preserve and accentuate the Indian character of the exhibits.

STATISTICS OF DUTCH INDIAN RUBBER COMPANIES.

According to details quoted in the report, there are in the Dutch Indies 217 rubber companies, distributed as follows regarding location:

102	with plantations in Java.
95	" " " Sumatra.
12	" " " Borneo.
8	" " " Rionw.

217	

The proportions of the total capital furnished by various nations is shown as follows:

	Nominal.	Issued.
Netherlands	\$26,620,200	\$14,326,760
England	71,627,960	57,210,240
Belgium and France.....	12,032,000	10,528,800
Germany	664,000	498,400
Sweden	168,000	74,200
America	400,000	400,000
Totals	\$111,512,160	\$83,038,400

Sample exhibits were received from 45 of these 217 companies, but, being of a representative character, are regarded as fairly illustrative of the rubber planting industry of the Dutch Indies.

Among these 45 exhibitors, 33 belonged to countries other than the Netherlands; the proportion being thus about 75 per cent., or less than that of about 83 per cent., as shown by the distribution of capital. The 33 companies included: 17 English, 8 Belgian, 6 French, 1 Franco-Swiss and 1 German.

THE SURINAM BALATA INDUSTRY.

Among the features of the exhibits was one from the Surinam Commission, representing in graphic form the production of balata at that point during the last 18 years. The figures thus represented were:

	Pounds.		Pounds.
1893.....	71,702	1902.....	707,251
1894.....	238,230	1903.....	815,696
1895.....	293,598	1904.....	571,780
1896.....	460,926	1905.....	537,783
1897.....	360,312	1906.....	593,815
1898.....	249,549	1907.....	763,120
1899.....	260,828	1908.....	999,226
1900.....	459,371	1909.....	1,382,883
1901.....	522,528	1910.....	1,963,882

The balata concessions rose in area from 172,400 acres in 1893 to 2,201,350 acres in 1910.

Attention is called in the report to the fact that the Surinam balata exhibits received a much higher degree of attention from interested visitors than was accorded to the leaf balata from British Guiana or the block balata from Venezuela.

EXHIBITS OF OTHER COUNTRIES.

In the concluding pages of the report a brief summary is given of the exhibits of Germany, Belgium, France, Brazil, the Federated Malay States, Ceylon and the British West Indies.

The report is evidently the result of much thought and detailed observation, forming an appropriate souvenir of the noteworthy occasion it commemorates.

A COMMUNICATION FROM PROFESSOR J. C. WILLIS, of Peradeniya Gardens, Ceylon, announces his resignation as director of agriculture. Professor Willis will be remembered as having discovered wound response in the *Hevea* tree, and as having done much in the past to make *Hevea* culture in the Middle East the success it now is.

Some Views From Guayule Experts.

THE PROPAGATION OF GUAYULE—A CRITICISM.

IN an unsigned article in the November issue of THE INDIA RUBBER WORLD¹, the question of the propagation of guayule by means of cutting is discussed in the light of an "interesting statement," made by Professor Mario Calvino, of the Central Agricultural Station, San Jacinto, Mexico. The writer of the article in question appears to have overlooked the chapter in my book² where, under the caption "Vegetative Reproduction," the whole subject is discussed, and appears, also, to be under the impression that my own attitude toward the relative value of forestal operations, as compared with cultural operations, is in favor of the latter as compared with the former. My statement is that the "ultimate and adequate solution of the production of guayule shrub lies in the direction of cultural rather than forestal operations." It is increasingly evident that, inasmuch as no measurable attention has been given to forestal operations in Mexico or Texas, the methods of *forestal conservation* can, in view of the much diminished supply, play but little part in the future production of the shrub. As I have already said in these pages,³ the manufacturer of guayule rubber has been thinking more of the immediate financial return than of the conservation of the supply of guayule. Abundant evidence may be seen in my treatise on the subject to show that my attitude toward forestal operations indicates their extreme value. It is, however, a fact that practically no attention has been paid to them by owners of guayule lands. Ultimately, therefore, we must, I believe, depend upon cultural operations in the usual sense, and as applied to forestry, since certain forestal operations might yet be made to yield results.

According to Professor Calvino, the propagation of guayule by means of seeds has proved "more or less unsatisfactory in practice." The experience of myself and of certain other students of the subject goes to show that the difficulty of raising seedlings is by no means as great as at first supposed. In the hands of the plant physiologist, it has been shown that it is possible to germinate a very large percentage of the seed. The results attained at the San Jacinto station appear to be due to insufficient study of the problem. In the article to which I refer, it is pointed out that while Professor Calvino was working upon the cultivation of the guayule from seed, Señor Salvador Creci, an agronomical chemist, announced that he had "succeeded in propagating guayule by means of ligneous cuttings." The writer goes on to say that "this idea was approved by Professor Calvino, and thereupon measures were taken to effect the propagation of guayule on this principle, seeing that in this way are propagated the *Anthemis* and the *Chrysanthemum*, which are of the same family as the guayule shrub. Accordingly, plants were obtained, from which "ligneous, seed bearing and herbaceous cuttings were taken for planting in boxes in the open air, and also in frames beneath glass. The herbaceous and seed bearing cuttings germinated in ten days, and the ligneous ones within fifteen days in the frame and twenty days in the open air." Then follow details in regard to later treatment, to which no reference need be made here.

In the first place, there is but slight *a priori* reason for believing that, because some plant of a given family may be reproduced by cuttings, others may also. This is purely a matter for experimental evidence to decide. It is my purpose to point

out that the experimental evidence in the case, so far available, is distinctly antagonistic to the impression given by the above quotation. It is pertinent to point out, furthermore, that many plants are known under cultivation, which can either not at all, or only with great difficulty and by special methods, be made to strike root from cuttings, and these *only from certain regions of the plant*.

I have already shown⁴ that it is possible to propagate guayule by means of "ligneous" cuttings. I must, however, say that it is not sufficient to use this adjective. It is possible to raise plants of guayule from "ligneous" cuttings made (a) of the root; and (b) in such a manner as to involve the lower portion of the stem just above the tap root; and (c) it is further possible to make ligneous cuttings from new shoots which have been forced to grow *from the base only of the main stem* by cutting back close to the top of the tap root. I have, furthermore, shown that *stem tissue confined to the base of retoños will regenerate roots*, but beyond this, the evidence derived from a very careful study of hundreds of cuttings, herbaceous and woody, both by myself and by my former associate, Dr. J. E. Kirkwood, has afforded nothing but negative evidence. In view of my experiments reported in the volume on guayule, it becomes the duty of those who claim that cuttings may be made with ease from any part of the plant (a claim which has been made in more than one quarter), to furnish perfectly definite and unequivocal *evidence* in support of their statements. This is made necessary by the weight of the evidence to the contrary already in hand, and in view of the danger that capitalists and their emulators may be misled by accounts which furnish incomplete proof of the statements made. I have in mind one instance of a Mexican gentleman, in the employ of one of the prominent guayule companies, who clandestinely (with regard to myself) carried on an extensive experiment, as the result of which he made the assertion that the guayule could be readily propagated by cuttings without the loss of any rubber. It was, perhaps, a piece of good fortune that I was able to make a personal examination of the experiment grounds. Having seen the results for myself, I do not hesitate to assert that not a single plant had been obtained from a cutting of any kind. Perhaps I may cite one experience by way of illustration of the question at issue. Doctor Kirkwood made a large number of cuttings, quite independently of myself. One of these started to grow, and in the course of a week or so not only produced a number of leaves, but flowers as well. As a result of a friendly challenge, the cutting was dug up and examined in the presence of both of us. It turned out that the basal portion of the cutting had, indeed, produced a root, but a critical examination showed that this lower end was simply a portion of the base of the main stem, just at the point at which the tap root leaves it. As my expectation was thus confirmed, it will be seen that there is here more than merely negative evidence. I must furthermore point out, as I have already done elsewhere, that under favorable conditions, not at all hard to establish, guayule cuttings will, in a very large percentage of cases, send out new leaves and appear to be growing. As a matter of fact, however, the appearance is quite deceptive. Although putting forth leaves and appearing vigorous, they are not producing roots, and it takes no great experience to realize that roots are quite as necessary as leaves, if a plant is to grow.

In justice to Messrs. Calvino and Creci, it should be said that by "ligneous cuttings," they may have meant those portions above indicated. In the quotation, which I have had recourse to, there is no direct evidence to the contrary. But until the

¹ Vol. 45: pp. 70-71. November, 1911.

² Guayule: a rubber plant of the Chihuahuan Desert. Publication 139 Carnegie Institution of Washington, pp. 193-198.

³ INDIA RUBBER WORLD, vol. 41, pp. 115-118, January, 1910.

⁴ In the book above cited, pp. 193-198.

evidence is forthcoming, those interested must needs be on their guard.

The evidence which they should require for the statement that herbaceous and ligneous cuttings can be made to grow readily or at all, should be the kind which a competent botanist would require. It is necessary to show that roots are actually produced from stem tissue from other regions than those from which I have already shown that roots may be produced. The strength of the evidence, moreover, should be greater or less according to the experience in the field of scientific botany he has had who makes any claims in regard to the matter at issue. It is, finally, of equal importance from the practical point of view, that the facts relating to the *percentage of successful cuttings be given.*

FRANCIS ERNEST LLOYD.

Alabama Polytechnic Institute, Auburn, Alabama.

PHOTOGRAPH SHOWING THE GROWTH OF GUAYULE, WITHOUT SEEDING OR CULTIVATION, ON CUT-OVER GROUND IN THE FIRST, SECOND AND THIRD YEARS.



GROWTH OF GUAYULE ON GROUND CUT-OVER IN 1908.

GROWTH OF GUAYULE ON GROUND CUT-OVER IN 1909.

GROWTH OF GUAYULE ON GROUND CUT-OVER IN 1910.

THE PRESENT STATUS OF GUAYULE.

THE present status of guayule shrub (the raw material from which guayule rubber is obtained) is of great interest to the rubber manufacturers of the United States, as this rubber has been an important factor in the trade for the past six years, growing from a few hundred tons in 1905 to a total of over fourteen thousand tons in 1910. The total product for 1911, up to the end of October, was seven thousand four hundred and forty tons. To this will be added the product of November and December of approximately eight hundred tons, making the entire production for this year eighty-five hundred tons. The drop in the production for 1911 may be attributed to two causes, first, the depletion of the shrub supply adjacent to the railroads, second, the interference with the industry arising from the disturbed condition of Mexico, due to the revolution.

The guayule shrub, as many of your readers know, is a desert plant of extremely slow growth under natural conditions. The arid country which is its habitat is seldom visited by rains, and not only does this affect the growth of the plant, but surrounds the cutting of it with great difficulties, as those engaged in the

extraction of it have to carry with them water for the men engaged in the work, and also for the animals necessary to freight the cut shrub to railroad stations. For that reason, much of the shrub growing long distances from the railroad remains uncut, and will be cut only when a sufficient high price for guayule rubber will justify the large expense necessary to procure the raw material. An advance to eighty cents per pound would bring some of this shrub to the factories.

Of great interest is the question of cultivating the shrub. Up to this time, no results have been obtained showing that this can be done at a profit; we know we can cultivate guayule, but at too high a cost for it to become an industry.

The next possible source of a supply of shrub is from the natural re-growth. On this point, we have had great encourage-

ment, as experiments made from territory cut over some years ago show that there will be a "second cut" of some size, and if the country is visited with rains similar to the past year, we may count on a steady though slow growth of this "second cut." This can never reach proportions large enough to warrant us in expecting an output of anywhere near the yield of 1910, but it will make it possible for some of the factories to maintain a constant if diminished output. From the present outlook and from the experiences gained in the past, the rubber trade may count on the yield of about four thousand five hundred tons of guayule in 1912, and about three thousand five hundred tons in 1913. From

that point on, there should be an annual production, indefinitely, of somewhere over two thousand tons. These figures are based on the supposition that the price of guayule will not go below forty-five cents per pound nor above seventy-five cents. If the price goes below forty-five cents, there will be less guayule rubber produced than the above figures, and if it goes above seventy-five cents, there will be an increase over these figures, temporarily, with a consequent acceleration of the consumption of the available shrub supply, and also with a consequent destruction of the future source of supply. High prices for rubber mean high prices for shrub, and a resultant "robbing"

of the cradle," or destruction of young and growing shrub, as anything that appears like guayule will be cut and shipped to the factories by shrub owners greedy for money.

WALTER E. PARKER.

General Manager, The Mexican Crude Rubber Co.

A GUAYULE RESUMÉ.

[In connection with the subject of guayule it seems apropos to reproduce the major part of a paper communicated to the Canadian Section of the Society of Chemical Industry, by Harold von der Linde, vice-president of the Continental Rubber Co. of New York. This is the best non-technical resumé of the whole subject of guayule which has yet appeared.]

RECENTLY a new source of revenue has been found in Northern Mexico in the shape of the guayule plant. This plant belongs to the order of Compositae and is a small shrub, weighing about two pounds and standing about two feet high when full grown. It has a dwarfed and gnarled appearance which is very characteristic, and has a sparse olive-green, lanceolate leaf. It bears a small yellow composite flower of an agreeable odor. The guayule shrub contains an extraordinary small amount of moisture, and indeed might be mistaken for a piece of dead wood during a large portion of the year were it not for the fact that on cutting into it the bark shows a greenish and somewhat moist section. The wood of this shrub is very hard and dense, and has a high specific gravity. The shrub grows on the Northern part of the Central Mexico Plateau in enormous quantities. This district is nearly rainless and is very sparsely populated by a partly Indian, partly Spanish, very poor race. The region is practically grassless and contains no large trees, being a typical desert country. The alkali dirt which is found over most of the plateau is in reality a very rich soil needing only sufficient water to make of the region one of the most fertile in the world.

Geologically, this region, which has been described with some minuteness by Humboldt, consists of rings of denuded mountains with flat plains at their feet. These flat plains of dry dirt have the appearance of dried-up lakes and this impression is heightened by the fact that the valleys communicate with one another through gaps or canyons in the mountains, which appear to have been the beds of former rivers. On what might appear to have been the beaches of the ancient lakes—that is to say, on a strip of land running around each ring of mountains somewhat above their bases, the guayule abounds. As a rule the soil selected by the guayule shrub appears to be most unpromising, as the so-called beaches are usually covered with flinty pebbles, many of which have not proceeded very far in the process which usually gives to pebbles a somewhat regular oviform shape. There is a considerable variety of plants growing in the direct neighborhood of these so-called old beaches. In the month of August, 1909, in the course of an hour I picked thirteen varieties of flowers within a very short distance of such a region. The soil under the pebbles in the guayule districts is usually gravelly and less tightly packed than the soil of the plains beneath, which is really largely a dried-out heavy clay. The sub-soil of those beaches on which guayule flourishes is said to be universally composed of white magnesian marl called "Caliche."

The droughts of this plateau region are sometimes very prolonged, and in the guayule lands (which range from about 4,000 to 8,000 feet above the sea) it is not uncommon to have a whole year practically without rain. On one hacienda in the heart of the rubber district, there was recently a drought, practically complete, of over two years and yet the desert plants managed to cling to life. That this should be possible is accounted for by the fact that each one of the plants has some kind of protective apparatus which either enables it to lie dormant without evaporation, or to store up water in a large quantity, or to get more

than its ordinary share of water. In this way the Maguey, or American Aloe, the Nopal or Prickly Pear, the Yucca or Palma, and many others, store up the water to an enormous extent in the occasional wet seasons; and as all of these have glazed leaves from which evaporation is extremely slow, they are able to resist prolonged drought. The mesquite bush and some other plants show little but their branches above the ground, the greater part of their trunks being buried, and their roots extending far down into the earth seeking for water. In North-western Mexico it is stated that mesquite rootlets can be seen in copper mine workings at a distance of from 120 to 130 feet below the surface. The fact that the trunks of this tree are so deeply buried and that so many of the rare springs of northern Mexico are situated on the precipitous sides of the denuded mountains, gives rise to the paradoxical saying that in this country one has to climb for water and dig for wood.

A third class of plants depends for its preservation on the fact that it possesses a waterproof cover—a sort of mackintosh coat—which almost entirely prevents evaporation during the dry seasons. Amongst these are the Gobernadora or greasewood, which secretes an enormous proportion of a very curious and complex resin; the Candelilla, which is completely covered with a coating of very hard, impervious wax; and the guayule, which possesses a very thick bark, in the cells of which solid rubber is secreted, forming a more or less complete coating for the plant. In this last case the mackintosh coat is practically the only defence that the plant possesses, as the roots are not long and do not sink deeply. As the guayule shrub does not take up a very large quantity of water even in the wet season it is necessary for its cells to become dormant and practically lifeless during the rest of the year.

Most of our sources of rubber, of which there are probably at least two hundred commercial kinds, consist in the milky juices of a large number of tropical plants. The guayule plant is exceptional in that it yields no milky latex—the rubber existing in the solid state, partially filling the cells of the bark—the cells themselves being lined by a resin which consists probably partly of incipient rubber and partly of degraded oxidized rubber. The plant also contains a considerable amount of two or more essential oils, which give it a very characteristic and not disagreeable odor. Rubber is contained in other parts of the plant besides the bark, but in a smaller quantity, although it is abundant in the roots. It was, of course, not possible to gather the rubber from this kind of plant in the usual way—by tapping, that is—and special methods had to be devised in order to extract it. These methods in the past were both chemical and mechanical, but the mechanical method has now superseded the chemical, which latter is but little used.

The guayule plant probably lives to the age of forty or fifty years in favorable cases. It is said to be mature in from five to ten years; but very little is certainly known on this subject, and very much of its growth depends upon the rainfall, so that in some districts it is probable that it matures very much earlier than in others. The amount of rubber borne by the plant is generally taken as being about ten per cent. There is a very great variation, however, in the yield of plants gathered in different districts. Some of the worst grades of guayule shrub will not yield as much as 10 per cent. of rubber, while some of the better grades will yield more. Guayule shrub appears to have the power of hybridizing with other plants. The hybrids, if such they be, have the power of secreting rubber, but it is in very small quantity and usually of poor quality.

Reproduction occurs in this plant by budding from rootlets and by seed. Of these two methods the seed seems to be the usual vehicle through which new plants appear. Each plant bears an enormous number of seeds, but a large proportion is found to be infertile.

The history of the guayule industry is very brief. The plant was used for many years in the back country of northern Mexico as

a fuel for smelting silver ores, and it is said that the Indians for centuries have made rubber balls by chewing the bark of the plant. In 1886 an English engineer reported to a syndicate of English capitalists that on a ranch which he was examining for mining prospects, that there was an enormous quantity of a plant which yielded about ten per cent. of rubber. He recommended the investigation of this matter as he believed it possible that commercial rubber could be extracted in quantity. No action was taken on his recommendation, and the matter lapsed until attention was attracted to it again a few years ago through the rising price of commercial brands of rubber. Attempts were made to extract the rubber from the plant by means of solvents. Other attempts were made to destroy the woody and barky matters by chemical means and leave the rubber untouched. Many patents have been taken out for all sorts of processes, but the mechanical method has practically superseded them all.

The plant is pulled from the soil and laden on the backs of burros. It is then carried to a central station, where it is baled by ordinary hay balers. These bales are placed upon large wagons, which are drawn across the desert by huge teams of mules—often 12 or 14 to the team—to the railroad station.

At the factory the process in principle is very simple, whilst the technical details have presented many difficulties, the conquering of which has resulted in a better and better grade of rubber. The plant is crushed to a very fine state of division in the presence of water and in the crushing the small grains of rubber adhere to one another, forming minute worms. These worms are capable of floating while the major portion of the woody and barky matters sink in the water. The rubber is skimmed off and further cleaned by purely mechanical means. It is then packed or baled and is ready for market.

This process is used for the bulk of commercial guayule rubber. Special brands are also gotten out for specific purposes. These brands are usually more or less deresinated. The resin in the commercial rubber is a highly complex body, and ranges from 19 to 21 per cent. of the crude dry rubber. There seems to be little doubt but that the presence of the resin acts to some degree as a preservative in vulcanized rubber goods. The so-called resin comprises all the acetone solubles that the rubber contains. For some purposes 5 to 10, or 15 per cent., or even all the resin is extracted, although many manufacturers believe that this process does not appreciably influence the quality of the product. Guayule rubber is classed among the soft inferior rubbers. It is undoubtedly a true rubber, and is almost paradoxical in its nature from the fact that the process of vulcanization enhances its quality to an extent which brings it into direct competition with other rubbers which sell for higher prices. In other words, it seems likely that the future will see guayule rubber at a price which will be higher relatively to that of other rubber than the price which it at present obtains. In other goods, when properly vulcanized, guayule rubber does not readily deteriorate. An extended experience indicates that its life or resistance to cracking, etc., is as great as that of rubbers of a very high grade.

David Bridge & Co., Limited, whose factory is at Manchester, England, has sent to this publication a copy of "The 'Mechanical World' Pocket Diary and Year Book for 1912." This is a handsome little volume of 426 printed pages, besides pages for a daily diary covering the whole year. The printed matter gives a vast amount of useful information, including engineering notes, rules and tables with many diagrams and illustrations—a very valuable volume for the mechanical worker.

NO MOTORIST NEED BE AFRAID TO PUMP HIS TIRE to the full limit with a hand pump, as it is practically impossible for him, with this implement, to get too much air into the tire. It is pretty safe to say that an always-full tire will last twice as long as the tire that is never more than half filled.

THE MADERO GOVERNMENT AND THE UNITED STATES.

PRESIDENT MADERO, of Mexico, is a person of more than usual interest to the rubber trade because of the commanding position long occupied by his family in the export of guayule from Mexico, in which industry he made his fortune and to which he owes not a little of the influence and prestige that made him the chief executive of his country. He is also an object of great interest to the entire American business world, as his administration appears to be planned on broad and liberal lines, with the promise that commercial relations between this country and Mexico will be greatly developed under the new régime.

One illustration of this desire on the part of President Madero to establish closer relations with the United States is the fact that he has sent his friends, Señor Heriberto Barron, to this country as the commercial agent of Mexico to inspire confidence



A BAND OF "MADERISTAS."

among American investors in Mexican enterprises. Señor Barron was *persona non grata* to President Diaz, but he stands very close to the present administration. He has opened offices at No. 32 Broadway, New York, where he hopes to establish a permanent Mexican Bureau of Information. He is quoted as saying:

"I want the American investors to know that they can now safely come into Mexico. We are particularly friendly to the United States because investors in this country already have nearly \$1,000,000,000 invested in Mexico and because 75 per cent. of our imports and exports come from and go to the United States. Trade has increased materially since Madero has been at the head of the government.

"It is a part of President Madero's plans to irrigate many sections of the country, to build new railroads, new harbors, and to encourage the formation of new steamship companies."

THE UTAH-MEXICAN RUBBER CO.

A recent number of the Salt Lake City "Herald" contains an interesting account of the progress made by the Utah-Mexican Rubber Co. It states that beginning eight years ago with 6,000 acres of dense jungle in the state of Tabasco, Mexico, it has increased its territory until it now has 80,000 acres, with more acres actually cleared and planted than were numbered in its original tract, 5,000 acres having been planted to rubber and another thousand acres to bananas. The work of the company was very much retarded by the turmoil of the revolution, which greatly decreased its working force, but even so, the company has begun tapping the older trees. It is stated that an English syndicate, which has already secured two Mexican plantations, made an offer of one and a half million dollars in gold for this one, which offer was declined.

The president of the company is Joseph F. Smith, while its directors include James T. Hammond, W. S. McCormick, John S. Bransford and W. W. Miller, all prominent in the business life of Salt Lake City.

A Morning With the Rubber Gatherers in Panama.

THE wet weather had moderated, the moon was changing in clear skies, the wind swung around to the north-east, and the rubber men in their distant mountain homes read in the skies that the tapping season was now at hand. The "man on the job" at headquarters had anxiously watched the sky for weeks, knowing that continued wet weather would prevent the natives from coming to work, meaning the loss of a month's production of rubber, and incidentally a call down from the home office.

Fortune, or rather the weather, was kind to him, and the morning dawns on clear skies and settled weather. He has been astir for two hours working by candle light, with every man, woman and child in the camp assisting in making ready the food supplies and camp equipment. The season is to be opened at Camp Pearson, a mountain camp fifteen miles from headquarters, and everything from a box of matches to the heavy rubber press, must be packed on the backs of men for this destination.

The first "grito" (or call from the morning *caucheros*) is heard in the distant hills and soon they arrive in groups of ten or twenty men, women, children and a score of emaciated dogs. By noon time the camp is alive with natives; the men sharpening their *machetes* and preparing their pack-loads, the women cooking a hurried meal, the boys shouting and the dogs quarreling.

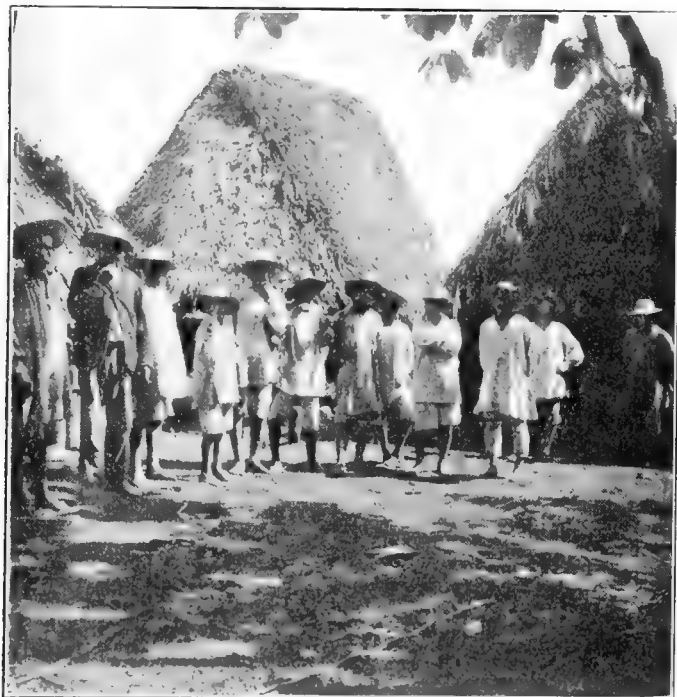
The *Mandador*, José, selects twelve of the most active natives, and slinging their packs, with *machetes* in hand, they start off in advance to open the trail and prepare the distant camp for occupancy. Later on, more men and boys, swing their allotted burdens to their backs and follow down the trail. The women fall in behind, carrying the blankets and personal belongings of

light marks the winding path. The curious monkeys look down from the branches and bark a protest, while the parrots feeding noisily in the trees complete the tropical picture.

At the ford of the river the natives have halted. Some have crossed, while others are helping the women. Strong poles are



BUILDING HEADQUARTERS AT CAMP PEARSON.



A GROUP OF "CAUCHEROS."

the men. The man in charge locks up the house and with a last look in the empty *ranchos* of the solitary camp, he starts down the path.

Over steep hills and rocky *quebradas* goes the trail where it is hard climbing in places—then it leads through the tall trees, forests of quiet shade and growing palms, where filtered sun-

used to assist in breasting the current and there is much shouting and laughter when an unfortunate native stumbles and falls in the water. Nothing, however, serious happens with the exception of a wet sack of rice or a soaked *motete* of clothing, and the march is resumed.

When the camp is finally reached the afternoon is well along. José and his men have repaired the thatch of the *ranchos* and made them habitable. The bush is cleared away, and bunks of poles have been made along the sides of the huts, ready for the approaching night. The cooks have been busy, and the pots of rice are steaming, with the black coffee bubbling and sending forth odors which can only be appreciated by a hungry bushman. The call, "*á comer*" (meal time) brings willing hands to lift the pots of hot rice and coffee from the fire and to place them on the ground, where they are surrounded by the squatting natives, who help themselves often and plentifully by means of large spoons made from the calabash.

The sun sinks lower, finally dropping out of sight, and the night falls quickly. The toads and night insects tune up, the embers of the fire crackle in the night air, an owl hoots dismally—and the camp is asleep.

Long before daylight, the "man on the job" shakes the cooks out of their blankets, issues the rations, and stirs the drowsy camp to activity. It is still dark when the morning meal is disposed of, as the tappers should be at work by daylight. José divides the *caucheros* into groups of fifteen and appoints a *mandador* to take charge of each group. Each man carries a latex-can, a small calabash and the inevitable *machete*. The *mandadors* are given certain districts to work in, and with pipes alight

they start down the trail and disappear in the bush, then strange call; "ah-oo-ah, ah-oo-ah," echoing in the distance until they are gone.

The man in charge appoints a *leñero* to cut fire wood. The women fetch water from the river and wash the pans, tubs and barrels. Every thing is made clean and ready for the preparation of the rubber milk. The little boys are sent to the *bajos* and return laden with hanks of "*bataquilla*" (Ipomea)—a green vine used to prepare the rubber coagulant—which they pound into shreds on the rocks and soak in tubs of water, wringing out the fibre, until a strong solution is obtained.

At two o'clock the *caucheros* begin to return to camp, and by four the last can of milk has been weighed and emptied into the mixing barrels. Clean water is added and the milk is passed through strainers which remove the dirt, bark, etc. The clean milk is placed in pans, and the coagulating solution added and stirred. This completes the preliminaries of preparing the rubber. Work for the day is over, and the sun sinks below the tree tops.

days in the smoke-house the rubber will be ready for the market.

A couple of *caucheros* come quietly into camp and ask for a gun. They have met with deer tracks. The prospect of fresh meat is ample cause for suspension of the order against hunting during business hours, and the hunters depart hurriedly with the gun. An hour passes and a distant shot is heard—and then another. In the uncertainties of mountain hunting this means nothing definite—but when two hours later, the hunters return staggering under the weight of a fat buck, their prowess is proven. The carcass is slung from a convenient limb and the hide quickly removed. The meat is cut up into strips and the bones carefully saved. A portion is salted down and hung in the sun to dry, but the best meat is usually smoked. Rude drying racks are made, and the strings of meat are festooned over the fire, which is replenished with green smoke-producing wood. A piece of smoked deer meat roasted in the open fire or fried in a very hot skillet, is a delight at the moment, and a memory of bush life never to be forgotten.



CAMP PALO SECO.



DRESSING A WILD PIG AT CAMP PEARSON.

casting long shadows over the clearing. The men and boys are bathing in the river; their shouts and laughter echoing back from the surrounding hills. The women are washing the pots, pans and barrels, and the sound of contentment and geniality is everywhere heard. Soon the camp quiets down, the stars shine through the dusky trees, and the dim light from the new moon makes ghostly shadows in the silent forest. The man in charge sits in his hammock smoking, and mentally figures on the possible production. Wet weather will bring a low average and failure. The uncertain natives may get discouraged and quit; leaving the work of the camp unfinished—his pipe goes out and he dreams of rubber in hundred ton lots and a selling price of \$5 a pound.

Next day proves to be ideal for rubber gathering, and an early start is made. The camp workers are soon busy with the routine tasks. The rubber has coagulated perfectly. Each pan contains a soft white mass of rubber, floating in a black liquor. It is carefully lifted out and passed through the press, coming out in the form of a large white pancake. It is then stamped with the company's brand and placed on the shelves to dry, where it gradually changes to a dark amber color. After a few

So the days go on. The piles of rubber increase and the grub sacks diminish. The *caucheros* have scoured the woods for miles around in search of untapped trees—the camp is finished. Early next morning breaking up camp is quickly accomplished. Heavy packs of rubber are slung on the backs of the men, the equipment collected, and a portion of the burden allotted to each individual. The "man on the job" slings his hammock and blanket on his shoulders, and follows his rubber gatherers down the home trail. Camp Pearson remains silent and deserted.

Camp Pearson was named in honor of the editor of THE INDIA RUBBER WORLD, who several years ago made a visit to Panama and spent many pleasant and profitable weeks studying its rubber problems, and exposing the territory where this camp is located.

WHERE BARYTES COMES FROM.

Barytes is a mineral used quite freely in the manufacture of rubber goods. Over 50 per cent., or to be quite exact 54 per cent., of all the barytes mined in the United States comes from the State of Missouri.

THE RUBBER TRADE IN BOSTON.

(By a Resident Correspondent.)

THE year just closed has been less successful than some previous ones, but, on the whole, fairly satisfactory. The tire business has shown a substantial increase, and individual houses report a larger sale, even with the additional competition of new agencies. The sales of belting, hose, packing and factory supplies has totaled up well, even though there seems to be a growing tendency, on the part of consumers, to buy in smaller quantities, and run closer to day-by-day requirements. The weather has been unusually favorable for a good demand for rubber and other waterproof garments, and every manufacturer of these goods has run his factory to full capacity, and many could have sold much more had they been able to deliver the goods. The year was an unsatisfactory one for rubber footwear, as might be expected, with real winter holding off so long, and the entire absence of snow during the early part of the season. It is generally conceded that a snow storm in November is worth two in January and three in February, to the rubber shoe trade, and as there was much less advance buying last spring, because of the absence of inducements, the orders came late, and some of them did not come at all. But with this exception the trade is doing but little grumbling and is looking for a better business all around in 1912.

* * *

The Wilkie Rubber Company, of Lynn and Saugus, has sent out a circular letter announcing the retirement of Robert J. Wilkie from the treasurership of that company. His successor is Philip K. Parker, formerly of the Security Trust Company, of Lynn. Harvey F. Mitzel, formerly of Barberton and Akron, has been made factory manager and superintendent.

* * *

A new arch support for the correction of foot troubles will be placed on the market by the Lynn Rubber Manufacturing Company. Under a process patented by Dr. C. D. S. Lovell, of Lynn, sponge rubber is molded and vulcanized on a last and then covered with leather. The company will also make rubber soles and heels for the shoe manufacturing trade.

* * *

Mention was made last month in this department of the souvenir framed in the office of Francis H. Appleton, in this city, a memento of his visit to England as representative of the Ancient and Honorable Artillery Company. This company plans to "go over to England and make a short visit to France, to show off their tar-bucket chapeaux, blue tail-coats and pearl-colored pants." An insular and continental trip is planned, and the above briefly describes the new uniform which is proposed, and will probably be adopted. It is interesting to note that a regular part of this uniform will be a rubber cape sufficiently large to protect the new clothing and countrements from the showers and fogs which may be encountered on the various marches to be taken during the journey abroad.

* * *

For more than half a century the ultimate consumer of rubber goods of almost any description, from a submarine diver's suit to a fine-tooth comb has been able to supply his wants in this line on School street. At one time there were three competing rubber stores, all run by H's, Hall, Hodgman and Hayes. Two of these disappeared from this locality years ago, but the "Goodyear Rubber House" removed from the old church building only last month, driven out by the march of progress and the increased cost of doing business under the shadow of City Hall and the uptown trend of retail trade. The new location is at 46 Boylston street, a few doors above the C. J. Bailey establishment. Robert Josselyn, the proprietor, has been connected with the rubber trade all of his business life. At the age of 17 he went to work in the

Hall rubber store. Then he ran a branch store for Mr. Hall in Washington until after the war, when he again came to the Boston store. He was with C. M. Clapp nine years, and after a few years in Detroit, came back and formed the partnership of Josselyn & Conant, and bought out the Hall store in 1879, since which time he has run the business uninterruptedly, buying out his partner twenty-four years ago. Mr. Josselyn's billheads describe him as a jobber and retailer of rubber goods, although his business is principally retail, and his new location is in a section where retail trade is growing more and more every year. His billheads still bear the imprint of the old wood-cut, used a half-century ago by Mr. Hall, showing the contrast between the man who wears a rubber coat and the one who doesn't, but it may be needless to say that if the picture is old-fashioned, the new store is up to date in all essential particulars.

* * *

The annual meeting of the Boston Belting Company was held December 5 and 6, at which the officers and directors were re-elected. A list of the officers, together with the company's balance sheet on September 30 last, will be found on another page under "News of the American Rubber Trade."

* * *

This is the bowling season, and all the alleys are being worked to full capacity. The Rubber Tire Bowling League, comprising eight teams of five men each, together with several substitutes, has been formed, and is already busy at Trinity Court bowling alleys. The tire companies forming the league are the Goodrich, Diamond, Goodyear, Fisk, Firestone, Kelley, Springfield, United States, Swinehart and Republic, the two last combining forces and entering one team. Great rivalry is manifested and some excellent scores are already recorded.

The tournament is to last fourteen weeks, and a prize of the value of \$80 is to go to the winning team, besides \$20 for individual high average, \$20 for individual three string, and \$20 for individual single string.

* * *

The Boston Woven Hose & Rubber Company has acquired the old Hayden mill in Plymouth, Massachusetts, which has an excellent water power. The company will make such changes as may be necessary to install an electric generating plant, to furnish power which will be conveyed by cables to the company's factory at Russell's Mills, a village not far from the newly acquired property.

* * *

An interesting feature of the recital of the Malden Musical Club on the evening of December 20, was the presentation of an original play, the text of which was read by the authoress, while the incidental music was rendered by the orchestra, and the songs sung by the club members and chorus. The whole work, dramatic and musical, is by Mrs. Harry E. Converse, wife of Col. H. E. Converse, of the United States Rubber Co., and daughter of the late John H. Parker, whose leather-soled rubber boots made him well known in the trade.

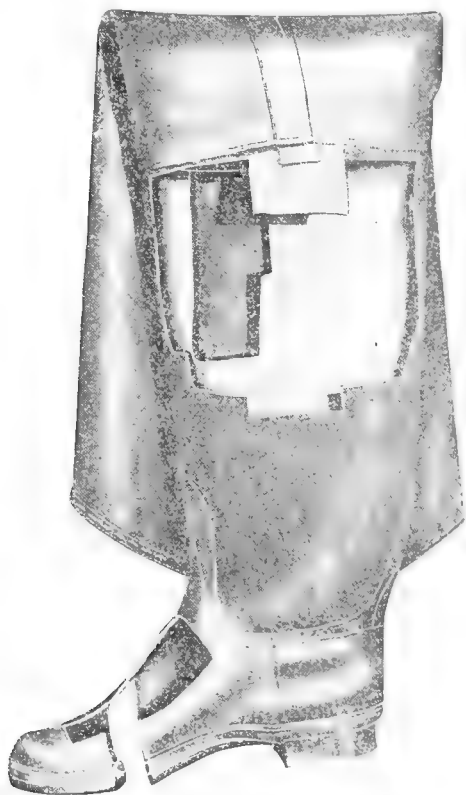
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A gentleman who accompanied Colonel S. P. Colt on his trip to Europe last year, says that Russia has America "skun a mile" in the size and importance of its rubber factories. One which they visited and inspected in St. Petersburg, has a force of employes numbering between 8,000 and 9,000. The daily output of boots and shoes is an average of 75,000 pairs. There is a similar large output of mechanical goods and druggists' specialties, and again an equal value in the production of clothing. The concern did a business of \$28,000,000 in 1909, and on this amount they were taxed 28 per cent. by the government, but in spite of this handicap, the year was a very profitable one, owing to the heavy protective tariff, on imported manufactures of rubber. "We saw much of the factory, though there were some things we didn't see, which we would like to have seen, yet we consid-

ered ourselves very fortunate to have seen any of it, and we must acknowledge our thanks for the great courtesy shown us by the Russians."

* * *

A hip rubber boot which was sent as a sample, with a bid for a large contract, was recently returned to the manufacturers in this city in the condition shown by the photograph. A large piece had been removed from the vamp; nearly a whole cross-section an inch wide had been cut out at the ball, taking pieces of the tap-sole, sole, insole, lining and upper, and from the leg two large sections were cut, one on each side. This shows the great thoroughness with which some large consumers examine samples before placing orders. It is believed that besides the



A SAMPLE BOOT AFTER BEING EXAMINED.

thorough examination into the construction of the boot, as shown by the dissection, each piece was submitted to chemical analysis to determine just how much pure rubber entered into the composition. And it might be added that the result was a good, large order.

* * *

The Enterprise Rubber Company has a fine pair of show windows in its store on Federal street, where thousands pass every hour of the business day, and these windows are always most attractively trimmed. During the football season a most appropriate trim represented a football field, the players being red rubber toys, each decorated with ribbon of the college colors. Another time one window contained a sample of every style of rubber footwear made by the Candee Company, numbering about 200 varieties, each one labelled and described. A display of tires and automobile accessories formed an attraction at one time, and along about the holidays the windows were filled with toys and useful articles suitable for gifts. Manager Procter is having a most successful trade, both wholesale and retail, though the early part of the season was not favorable for some of his lines.

RUBBER TRADE IN RHODE ISLAND.

(By a Resident Correspondent.)

THE Grand Trunk Railroad Co., the Canadian corporation which has been waging a strenuous fight against the New York, New Haven and Hartford Railroad Co. in an endeavor to extend its lines into Providence, has purchased the land recently acquired by the Walpole Rubber Co. for a site in this city. It is to use it for a large freight station.

The Walpole Rubber Co. secured this land from the Providence Land and Wharf Co. several months ago for the purpose of building a plant here, as its plant at Walpole is being gradually outgrown and the concern wants to get into the midst of the shipping activities of Rhode Island's capital. The tract is in the industrial heart of the city and contains about 83,000 square feet.

It has been learned from Mr. Baldwin, of the Walpole Co., that his concern has not given up the idea of coming here, but, on the contrary, is endeavoring to secure another desirable location. Its whereabouts cannot be learned, however, until negotiations have progressed further.

* * *

After experiencing a dull period of several months, during which time the plant was run on a schedule of five nine-hour days a week, the National India Rubber Co. resumed full time on November 26, six days a week of 10 hours each. Simultaneously with the resumption of full-time the working force was increased, and now numbers between 1,600 and 1,700 persons.

The increase in business came most heavily in the gum-shoe and arctic departments, where 3,000 pairs per day were averaged at first. Since that time the daily output of gum-shoes has been increased from 150 to 250 cases, and the arctic output has been increased from 100 to 200 cases. Officials of the concern expect the brisk business to continue. There is also a heavy demand for tennis shoes.

* * *

George A. Sherman, a former resident of Bristol, Rhode Island, and foreman at the American Rubber Co.'s plant, Cambridge, Massachusetts, died at his home, Milford, Massachusetts, November 23. He had been ill for a long time. He was a member of the Knights Templars, and leaves a widow and one son, George S. Sherman, Jr., M.D., of Cambridge.

* * *

The name of the Banigan Building, one of the largest office buildings in Providence, which until recently was controlled by the estate of Joseph Banigan, a former prominent rubber man here, has been changed to the Grosvenor Building.

* * *

The American Wringer Co., of Woonsocket, will be benefited by a proposed freight yard of the Grand Trunk Railroad Co. in that city. The railroad corporation's intention to compete with the New Haven railroad has caused it to file a location for yards and freight stations in the center of the manufacturing district of Woonsocket within a few hundred feet of the American Wringer Co.'s plant.

* * *

John J. Kelly, of Warren, Rhode Island, who has been a book-keeper at the Bristol office of the National India Rubber Co. for several years past, has recently been appointed paymaster of the corporation.

* * *

The good condition of an automatic sprinkler system and the discipline of a fire-fighting brigade made up of employes saved the Bourn Rubber Co. from a disastrous fire on December 4. Its effects would have been particularly acute at this time, as the concern is rushing at full capacity turning out rubber overshoes. The fire began in the middle of the afternoon when a "blow down" pipe in one of the boilers exploded and scattered the

contents of the firebox over the floor. The engineer had barely enough time to get out of the room before it was ablaze. The flames were extinguished before the arrival of the city apparatus.

* * *

Col. Samuel P. Colt, president of the United States Rubber Co., president of the National India Rubber Co., of Bristol, Rhode Island, and chairman of the board of directors of the Industrial Trust Co., of this city, will be the storm center at the annual meeting of the latter corporation here on January 16.

Colonel Colt is the founder and principal stockholder of the Industrial Trust Co., the largest banking institution in Rhode Island, its assets, according to its report December 4, being \$51,159,664.52. While ill during January, 1908, Mr. Colt was induced to resign as president of the company, with the understanding that his position as chairman of the board of directors would be fully recognized upon his recovery. Since then, he says, his position has not been recognized in the manner in which it is in other corporations and that harmony does not prevail between himself and other officers.

Under date of November 20, Col. Colt sent out a circular request for proxies to be used at the annual meeting. The request was on paper headed "Industrial Trust Company," and in the request Col. Colt was named as attorney. Two days later stockholders received a printed circular from the executive committee advising them to wait for the usual notice and the regular form of proxy, and stating that Col. Colt's request was made without authority. This letter was signed by Cyrus P. Brown, Richard A. Robertson, William H. Perry, H. Martin Brown, C. C. Harrington, Otis Everett and Arthur L. Kelley. The latter is president of the Mechanical Fabric Co.

Col. Colt replied a few days later with a letter in which he explained that the "Industrial Trust Company" had been his post office address for many years and called attention to the fact that the letters were signed by him personally, with no reference to his official position. He said that he would be pleased to return proxies to any who had been misled.

In his home town, Bristol, Col. Colt has already secured 1,912 shares out of a total of 1,991, and has many proxies from other places. He says that he wishes to restore harmony. As Col. Colt was the organizer of the company 24 years ago, and has been largely instrumental in bringing it to its present high standing in the banking world, it is believed that his influence will be potent at the coming annual meeting, if he does not actually control it.

In his letter to the stockholders he had this to say: "I firmly believe that it is in the interest of all stockholders to send me their proxies, that there may be a restoration of harmony in the management of the company, which has been, and is, so dear to me, that there may be no abatement of that energy which, with the co-operation of many loyal men, brought the company from the foot of the ladder in 1887 to be one of the leading banking institutions in New England, and that I may again find pleasure in influencing whatever business I can in the company's favor."

* * *

The publication of Bulletin No. 36 of the Department of Commerce and Labor in a Providence newspaper in which the director of the Bureau of the Census gave the total capitalization of Rhode Island's rubber manufactures as \$11,794,533, the total number of persons employed as 991 and the amount of wages paid as \$416,642, excited much comment among rubber men here.

The manufacturers immediately replied by pointing to the Rhode Island State Census of 1905, in which the total number of employes in the State in the boot and shoe branch of the trade was given as 2,590 and in the rubber works as 1,528, the total in the business being 4,118 at that time. They also named seven of the largest establishments, the Woonsocket Rubber Co., Woonsocket; National India Rubber Co. and Consumers' Rubber Co.,

Bristol, and the Davol Rubber Co., Mechanical Fabric Co. and Bourn Rubber Co., all of Providence, and the Revere Rubber Co., the Providence plant of the United States Tire Co.

Any one of these concerns, it was stated by a prominent official, would equal the Government figures for the total, and this man also pointed out the presence of other smaller concerns in the state.

The director heard of the criticism of the rubber manufacturers of the state and sent an explanation to a Providence newspaper in which he stated that table No. 16 of Bulletin No. 36 did not include the manufacture of rubber boots and shoes. He said that these were under a separate classification. They were, but they were merged with other industries, so that it was impossible to get any information concerning them. This, he explained, was because "the law controlling the work of the Bureau of the Census provides that no publication shall be made whereby the operations of the individual establishments can be identified, and, therefore, in presenting the statistics for Rhode Island the data for the manufacture of rubber boots and shoes were included with all other industries."

THE RUBBER TRADE IN CHICAGO.

(By a Resident Correspondent.)

BESIDES being one of the most successful business women of the West, Mrs. E. V. Laughton, of Racine, Wisconsin, treasurer of the Chicago Rubber Clothing Company, was one of the pioneers of the rubber industry in the Middle West. For more than thirty years she has been the moving spirit in the company, and it was largely due to her energy and financial ability that the business grew from a small beginning into the flourishing concern it now is.



MRS. E. V. LAUGHTON.

In 1879 George H. Laughton, her husband, formed Laughton & Co., the first rubber manufacturing concern in Chicago. Mrs. Laughton was the "& Co.," and even then was the mainstay of the financial end of the business. In 1882 the concern, which had hitherto purchased its gossamer cloth from the East, was incorporated as the Chicago Rubber Clothing Company, and the first factory in the West for the manufacture of the old, sun-cured gossamer cloth was built at Grand Crossing, a suburb to the south of Chicago.

The establishment was moved in 1887 to Racine, where the main factory is now located. There were several reasons for the move. First, the factory at that time employed about 200 girls and help was plentiful in the northern town. Second, the change offered freedom from labor troubles. Another reason was the fact that Racine was then offering inducements to growing concerns.

At the time of her husband's death in the summer of 1893, Mrs. Laughton was secretary of the company. Immediately following his death she was elected general manager of the com-

pany, and served in that capacity for nearly 18 years. Because of increasing duties and her many activities in church and charitable work, she resigned as general manager and was succeeded by George G. Bryant, January 1, 1910.

Every employe of the company swears by Mrs. Laughton, and everywhere that her salesmen go one hears unbounded praise for the energetic, resourceful woman who has been the "backbone" of the business since her husband's death. H. J. Halaburt, present manager of the Chicago office, at 208 North Fifth avenue, who has been with the company 27 years, is one of Mrs. Laughton's staunchest friends. For twenty-one years he was on the road, and two years ago was placed in charge of the Chicago office.

* * *

L. A. Hawley, after a two years' absence, has returned to his old position as manager for the Motz Tire and Rubber Co., 2023 Michigan avenue. Mr. Hawley was the first manager of the Chicago district for the Motz people, but left two years ago to go with the Consolidated Rubber Tire Co. in the local district. Since Mr. Hawley's first connection with the company, the concern has moved to "automobile row."

* * *

The establishment of a new rubber concern in Chicago this month caused a change in the officers of three other concerns. E. G. Stearns resigned as Western sales agent for the United States Rubber Co., with headquarters at 246 Monroe street, to establish a business of his own. He was succeeded by Richard C. Hall, who resigned as president and treasurer of the Duck Brand Co., 508 South Franklin street. Mr. C. A. Eldridge, president and treasurer of the Banigan Rubber Co., 246 Monroe street, accepted the place left vacant by Mr. Hall. Mr. Eldridge in turn was succeeded by E. C. Yarnell.

* * *

E. G. Stearns and W. H. Burritt, owner of the Banner Rubber Company, of St. Louis, have incorporated the Stearns Rubber Company, which is to handle the products of the St. Louis factory. The new concern, which will handle tires, boots and shoes and rubber clothing, have been located in temporary quarters at 323 West Jackson Boulevard. On the first of the year, however, the company moved into spacious quarters on the ground floor on the corner of West Jackson Boulevard and South Market street. Branch offices have also been established in the Plymouth building, Minneapolis, Minnesota, and at 1508 Washington avenue, St. Louis. Mr. Stearns is president of the company, Mr. Burritt is vice-president, and W. F. Rath was elected secretary and treasurer.

* * *

A Chicago office is to be established by the O'Neil Tire and Protector Company, of Akron, Ohio, in the near future. The company, which manufactures the only patented five individual vulcanized bullet-proof ply protector, recently appointed Harry Israel and Morton B. Koblitz as general sales agents for the United States and Canada.

* * *

John H. Kelly, manager of the Chicago branch of the Republic Rubber Co., speaking recently of the improvements in inner tubes, said that the durability is due largely to the improvement in the Pará rubber compound.

"It seems but yesterday that inner tubes for automobile use were little more than overgrown bicycle tubes," he said. "Today we are making the black line red inner tube with its individual canvas case, protecting it from dust, light and injury from tools. The material is compounded with special reference to the grueling conditions of motor service, and improvement in the Pará rubber compound makes this tube much stronger, more wear resisting and largely impervious to solar and frictional heat. This is but one of the many improvements in the rubber end of the automobile business that follow on the heels of each other so quickly that there is only time for a moment's wonder."

THE RUBBER TRADE IN TRENTON.

(By a Resident Correspondent.)

LOCAL manufacturers report that business has been brisk the past few months with the outlook most promising, all the plants being operated practically full-handed. Many of the plants are working day and night shifts, and the holiday season will be marked by a cessation of not more than a day or two on account of stock taking. Some concerns are operating the tire departments steadily, day and night, while others are working full-handed on the day shifts and four nights a week.

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As a rubber center Trenton is rapidly getting into the first rank, the accessibility to New York being a factor which has caused more than one concern to locate here.

* * *

The building formerly occupied by the Morrisville Vulcanite Co., Morrisville, Pennsylvania, across the river, will become a boxing arena if local amusement promoters can come to satisfactory terms with the owners of the building. The laws of Pennsylvania permit six-round boxing bouts, while the ban is on the sport in this city. Hence the necessity for securing a building in Morrisville, which is within five minutes' trolley ride.

* * *

The United and Globe Rubber Manufacturing Cos. and the Empire Rubber Co. recently furnished the city of Trenton with 10,000 feet of fire hose at \$1 a foot. Each concern supplied 5,000 feet, bidding in open competition.

* * *

The Chamber of Commerce of this city is making a strong effort to bring several rubber concerns to this city from the middle west. Secretary Metzger is authority for the statement that one concern has secured option on a tract in the southeastern section of the city for a plant.

Mr. Metzger declines to divulge the name of the concern at present.

* * *

Although a particularly busy man with the affairs of the United and Globe Rubber Manufacturing Co. the vice-president of the concern, John S. Broughton, finds time to act as director of a half-dozen corporations, several banks and the Trenton School of Industrial Arts, located near the state capitol.

* * *

The local rubber companies manufacturing automobile tires have "passed up" all forms of racing and race-meet advertising, believing it is unprofitable. The Empire, Home, Whitehead, Thermoid and other concerns have taken a turn at this style of exploiting the merits of tire product but the officials of the companies agree that printers' ink in publications devoted to the industry brings better results.

* * *

Clifford B. Oakley, of the Essex Rubber Co. is one of the rubber men who believes in "being on the job" at all times. He is one of the hardest workers in the business and since he entered this firm it has made rapid strides. Every inch of space in the new addition to the plant in East Trenton is utilized. This concern is filling many orders for sporting goods, such as rubber quoits, tennis and yachting rubber shoe heels and other specialties.

* * *

The three-story 60' x 180' brick building, an addition to the plant of the Hamilton Rubber Manufacturing Co., is about ready for occupancy and gives the concern needed room for the mechanical rubber department. This progressive concern has been working day and night shifts and President Blodgett states that the outlook for a big season's business was never more promising.

THE RUBBER TRADE IN SAN FRANCISCO.

(By a Resident Correspondent.)

THERE is improvement in the business of the average rubber merchant of this city. There is unquestionably a healthier tone to business in all general lines, and even if the sales in any particular line of business are not showing great increase, nevertheless that business is feeling the good effects of the universal improvement in trade conditions. The lack of rain has had the effect of holding back business in rubber clothing, boots and shoes. In San Francisco and suburban cities there has been a great increase in the amount of building, railroad construction and general civic improvement, which is a certain indication that the people are getting into a more liberal frame of mind than they have been in for several years, and this certainly proves better financial conditions.

* * *

William Hechtman, formerly with the Gorham Revere Rubber Company and for a short time with the Gorham Engineering Company, is now connected with the United States Tire Company. He will have his offices in San Francisco, and at the present time is located in the Hughes Building, although as soon as the company's new quarters on Golden Gate avenue are completed he will move there.

* * *

W. A. Daggett, with the Eureka Fire Hose Manufacturing Company, is now in Los Angeles looking after the interests of his firm in that city regarding the 10,000 feet of fire hose which the city is buying.

* * *

Jas. B. Brady, of the Gorham Revere Rubber Company, reports that business with this firm is highly satisfactory. Taking in the entire coast it is his observation that conditions are a little better in the northwest and in Los Angeles than they are in San Francisco. This city, however, is improving and 1912 will see greater improvement. By 1913 he is satisfied that business will be booming, in San Francisco in particular and generally all along the coast. This firm is just now beginning to put a new tire on the market adapted specially to the needs of local autoists. It is the Revere tire, which is a great deal heavier than the average tire and of stronger fabric than the general tire on the local market. A great deal of study has been given to conditions of California roads, and it is found that they average rather rough and require a strong, rugged tire.

* * *

On the 27th, 28th and 29th of last month the Gorham Revere Rubber Company held a meeting of its salesmen gathered from Los Angeles and San Francisco. Business meetings were held in the mornings, the men being royally entertained in the afternoons. The purpose of the gathering is to bring the salesmen together for the exchange of ideas and to bring them all in close touch with the company they are working for. A little later on a similar meeting will be held for the salesmen in the northwest at Seattle. Next year, with the experience gained from the two meetings held at this time, one big meeting will be held taking in all of the salesmen connected with all of the branches of this company on the Pacific Coast.

* * *

L. D. Torrey, son of L. L. Torrey, who was formerly president of the Pennsylvania Rubber Company of California, is now the manager for the Weinstock Nichols Company, of Los Angeles. Mr. Torrey's offices were formerly in San Francisco.

* * *

H. C. Norton, of the American Rubber Manufacturing Company, now makes his headquarters at the company's offices on Beale street, near Market. Construction work is now going on for a new addition to the company's factory at Emeryville, California.

The Pacific Mill, Mine & Supply Company, both at their San Francisco store, on Mission street, and at the branch in Los Angeles, report an excellent business on rubber belting.

* * *

W. F. Bowers, president of the Bowers Rubber Works, is now making a trip through the principal cities of the east. He will return on the first of January. Mr. Tripp, one of the office men with this firm, who was sick with typhoid fever, is now on the road to recovery. He had suffered a relapse after his first convalescence, which set him back several weeks.

* * *

"Up to the present time," said R. H. Pease, head of the Goodyear Rubber Company, "we have not had half the amount of rain we had at this time last year, and as last year was a very dry fall it makes slow business in the matter of boots and shoes and clothing. We all hope we may have a good storm to clean up goods and stocks in the country. Our general business, taking everything into consideration, is very fair."

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The City of Seattle, Washington, has again called for hose bids. The first time all bids were rejected because the city authorities concluded that the goods they wanted could not be made at the low prices of the lowest bidder. The second time they were rejected because there were only three bidders. Now, on the 25th of last month they reopened the specifications. This unsettled condition makes it bad for the bidders, who have to put up a check, which ties up their money for several months, and makes them spend their time, energy and money three different times instead of one.

* * *

Following the visit of A. F. Osterloh, manager of the western sales division of the Goodyear Tire & Rubber Company, Assistant Sales Manager N. B. Taylor has been placed in charge of the company's branch in San Francisco, succeeding A. C. Leonard, who for over a year has been the western manager. Mr. Taylor will have general supervision of all of the firm's interests in the west, and while Mr. Osterloh was here he accompanied him on a tour of inspection of all the branches. This company is erecting a large store on Van Ness avenue. Mr. Leonard has not made any definite announcement, but it is reported that he will secure a tire agency of his own and locate with offices in San Francisco.

* * *

W. R. Gorham, manager of the Gorham Engineering Works, of Alameda, and son of W. J. Gorham, of the Gorham Revere Rubber Company, was married in Los Angeles on December 2d to Miss Hazel Hock of the southern city, a former schoolmate and a former Alameda girl. He left Los Angeles with his bride bound for Columbus, Ohio, via New Orleans. His marriage was a surprise to all of his friends.

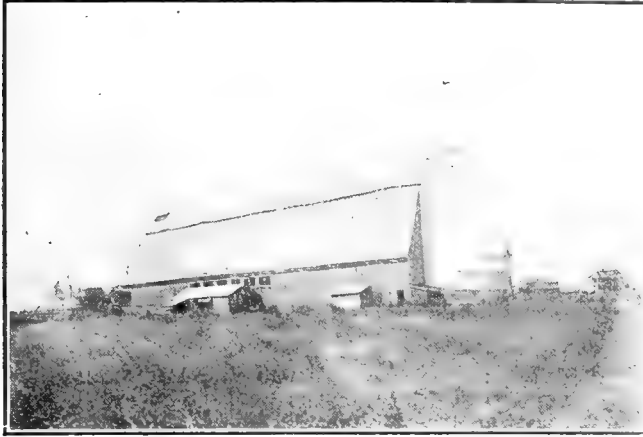
CLEANING AUTOS BY THE VACUUM SYSTEM.

If the vacuum cleaner is serviceable and efficient in offices and homes, why should it not be made to work on the automobile, which has a great many little corners which it is difficult to sweep out in the ordinary way. As a matter of fact, an automobile vacuum cleaner has appeared, and very probably will soon be in more or less extensive use. It is fitted with rubber hose, of sufficient length to reach any part of the automobile, the appliance being operated by the exhaust gases of the machine. It is particularly useful in cleaning out all the little inaccessible corners of the upholstery, and can, in addition, be used upon the occupants of the car after they have finished a dusty ride. The suggestion might be made that if the Pullman company would add an equipment of this sort to its cars, it would be vastly preferable to the present system, by which the porter takes all the nap off of one's apparel with a whisk broom in one hand, while with the other hand he depletes the traveler's pockets.

A Description of the Balloon "Akron."

(By a Special Correspondent.)

THE original description of the balloon "Akron," which is financed by F. A. Seiberling and managed by Melvin Vaniman and constructed under the supervision of Melvin Vaniman and a corps of able aeronautic engineers of The Good-year Tire & Rubber Company, and the construction of the balloon



HANGAR OF THE "AKRON."

part, were taken up in the September issue of this magazine. This has now been completed, a few minor changes being made. The length has been cut down ten feet in order to accommodate it to the hangar in which it is housed at Atlantic City. The gross weight carried is approximately thirteen tons. The shape has been specially designed and special allowance has been made for stretch and strain, each of which under trial has worked out well.

The car consists of long trusses of steel tubing of bridge construction design. The lower parts of the trusses form the gasoline tank, which holds about five tons of gasoline. There are three main engines mounted transversely over the gasoline tank, each driving two wooden propellers, one on each side. The middle engine is an eight-cylinder E. N. V., and the other two are six-cylinder Sterlings; the first developing 80 horse-power at 1,500 r. p. m. and the second developing 90 to 100 horse-power at 1,000 r. p. m. Properly run, each of the propellers will make 500 r. p. m. The forward two propellers rotate in transverse vertical planes, driving ahead only. The other propellers have a different plane of rotation and can be turned about a horizontal transverse axis by means of a special invention of Mr. Vaniman's, so that they aid in elevating or depressing the ship as necessity demands. In addition to these three engines, there is a small four-cylinder engine of about 17 horse-power used for several purposes. It starts the

main engines, runs the generator for the wireless apparatus and also a small dynamo for lighting the ship. It drives the blower for inflating the balloonnet and can be connected with the hoisting winch for handling the equilibrating device.

The horizontal control of this balloon is secured by a rudder attached to the rear, which is controlled from the steering post at the forward end of the balloon. This rudder consists of a steel tubular framework covered with specially prepared fabric similar to that used on aeroplanes, and has three vertical plane surfaces. The vertical direction of the ship is controlled by three horizontal planes attached to the rear of the rudder and two horizontal planes on each side near the bow. These can be inclined upward and downward, both controlled jointly or individually from the navigator's position at the forward end of the gasoline tank. The altitude is controlled partly by means of planes, partly by after-orientable propellers, by the amount of ballast carried and partly by means of water forced into the balloonet. The longitudinal course of the ship is maintained by placing of the weights and also by forcing air into the high end of the balloonet, displacing hydrogen. There are two balloonets, one front and one rear, into any one of which can be forced air. It has automatic escape valves. There is one large gas valve in the bottom of the balloon and an emergency valve directly over this, controlled by cords which come down from the balloon.

The wireless apparatus consists of Marconi instruments which are claimed to have power to send signals for 500 miles.

The lifeboat carried on board during trials is the one used in the "America," but repaired and improved. It is about 27 feet long, with watertight compartments. This boat is non-capsizable



THE "AKRON" JUST OUTSIDE THE HANGAR.

and non-sinkable, these properties being of importance. The ship will be provisioned for ten days to two weeks.

The balloon bag consists of five distinct compartments and is filled with hydrogen. The volume of the bag is 375,000 cubic feet.

The balloonets contain about 99,000 cubic feet. The balloonets are placed in the lower part of the inside of the main balloon and are separated from it by a diaphragm of specially constructed fabric. The contents of these balloonets are under the direct control of the man at the helm.

The car differs from the cars of almost all previous balloons by being suspended closer to the main gas bag. This is known as the non-rigid suspension type. About two-thirds down each side of the gas bag are sewed extra strips eight inches in width, which suspend from the car and in which are holes with ash poles attached. From these poles are hung strong



JACK IRWIN, THE "AKRON" WIRELESS OPERATOR.

ropes. These small eight-inch strips are practically continuous along the sides of the bag, and the ropes from these converge, working into stronger and stronger ropes, which are necessarily further apart, until they meet the steel cable, which is attached to the car, thus being approximately 25 feet from the sides of the balloon where the supporting ropes are attached.

It is claimed that the crew will consist of seven people.

The cooking utensils are of special light material and designed for use on this ship. The heat of the exhaust pipe is utilized for cooking. Sleeping apartments have been provided for in the life boat and in bunks built in the structure of the car.

It is reported that Commander George B. Evans, of the scout cruiser *Salem*, will be in charge of the two ships supplied by the navy to accompany Vaniman on his transatlantic dirigible balloon trip, and he is reported as saying: "Mr. Vaniman's plan is perfectly feasible, although it presents many difficulties." Commander Evans was not informed as to which course Mr. Vaniman intended to follow, but picked out the eighth parallel as one that might be followed, saying that the most favorable winds would be found in mid-ocean and that at the beginning and end of the course he would find decidedly adverse wind conditions. The *Salem* is equipped with five wireless apparatus, and will be able to keep in touch with the dirigible at all times. It has powerful searchlights so that close tab can be kept on the balloon. Mr. Vaniman has added an additional motor to the

equipment of the balloon. Mr. F. A. Seiberling, Mr. Vaniman's financial help, says that he wants to give Mr. Vaniman every chance to make a perfect ship, and that it is up to him to do as he chooses. He doubts the wisdom of going to sea in winter and possibly encountering a sleet storm, which might load his balloon down with ice and cause it to sink, and believes that waiting until spring would place the expedition in better shape for success. Mr. Seiberling has encouraged Mr. Vaniman to make experiments and to order alterations until everything has been got into the best possible shape. Mr. Seiberling says, "I view the sleet storms as one disquieting influence, but there is the vision of the German ship hoping to come across the equatorial trade winds. I want our ship to make the journey first, and I expect Mr. Vaniman will be ready in a few days, to be governed by circumstances as they appeal to him."

Jack Irwin, the wireless operator, who will accompany the "Akron," has had a career filled with adventure. In 1900 and 1902 Mr. Irwin served in the Boer war as soldier, and also as military telegrapher and signaller. He received decorations from both Queen Victoria and King Edward for his services. In 1906 he accompanied the British in the famous Zulu campaign, and again won decorations for his work. Returning to America, he joined the staff of the Marconi company in 1907, and became famous as the receiver of the C. Q. D. call from Jack Binns, of the ill-fated steamer "Republic." In 1910 he accompanied Mr. Vaniman in the airship "America."

TRANSACTIONS OF NATIONAL ASSOCIATION OF COTTON MANUFACTURERS.

The fact that the annual meeting of the National Association of Cotton Manufacturers, held April 12-13, 1911, marked the 57th anniversary of its establishment in its original form, adds weight to the deliberations recorded in the published proceedings. It numbers at present 1,052 members.

In his address, the president, Mr. Franklin W. Hobbs, of Brookline, Massachusetts, quoted various pertinent facts and estimates. Amongst other points he referred to the increase of 27.3 per cent. which had taken place between 1900 and 1910 in the number of the world's cotton spindles, which rose during that period from 105,700,000 to 134,500,000. He further estimated that the mills of the world, on full time, would need at least 20,000,000 bales, while the production of cotton for 1909 equalled 16,650,000 bales, classified as follows: United States, 10,000,000; India, 3,600,000; Egypt, 900,000; Russia, 700,000; China, 600,000; Brazil, 350,000; other countries, 500,000.

These figures would seem to indicate a possible deficit, but are based on the world's mills working full time, which is not stated to be the case. Whether the supply of cotton is sufficient for the extent to which they are working, is another question. In any case, Mr. Hobbs' expressions are of interest. He said:

"I think I am not too optimistic to believe that from the present acreage the production could be doubled if proper methods were used. . . . To improved methods of cultivation we must add a better method of picking, . . . and a general improvement in every step and process between the planting of the seed and the delivery of the cotton to the mill. We have too long drifted. The time is now ripe for concerted and determined action if we are to maintain our commanding position."

Thus conditions and interests are by no means dissimilar in the cotton and rubber industries.

The subjects treated in the papers presented, included various topics of a special character, such as:—Cotton Picking by Machinery, Laws of Regain in Cotton and Worsted, etc., and likewise several of a more general nature, such as:—Arbitration on Cancellation of Orders, Limits of Scientific Efficiency, Efficient Buying of Raw Material, Risks in Modern Industry, etc.

EUROPE AND THE AMERICAN RUBBER EXPOSITION

THE rubber centers of Europe are taking a very lively interest in the Third International Rubber Exposition, which is to be held in New York next September, as is shown by the large number of men, prominent in the various phases of the rubber industry, who have signified their willingness to serve on the European Honorary Advisory Committee.

The president of the committee will be Sir Henry A. Blake, G. C. M. G., and the vice-president, the Right Hon. Lord Elphinstone. The membership of the committee includes the following:

Association des Planteurs de Caoutchouc, Belgium.
 John L. Bains, Ceylon.
 Dr. A. H. Berkhout, General Secretary, International Rubber Testing Committee.
 A. Bethune, J. P., ex-Chairman, Rubber Growers' Association, London.
 W. D. Bosanquet, Director, Golconda Malay Rubber Co., Limited.
 E. E. Buckleton, Managing Director, Northwestern Rubber Co., Limited, of U. S. A., Liverpool.
 Ed. Bunge, President of L'Association des Planteurs de Caoutchouc Anvers.
 Mario Calvino, Doctor en Ciencias Agrícolas, Editor and Secretary of "Sociedad Agrícola Mexicana de Mexico, 4a De Tacuba, 34, Mexico, D. F.
 The Ceylon Association in London.
 F. Copeman, Director, The Rubber Estate Agency, Limited, London.
 George Corderoy, Managing Director, The Malaysia Rubber Co., Limited.
 Andre Cremazy, President, de la Chambre d'Agriculture de Cochinchine.
 F. Crosbie-Roles, Editor "Times of Ceylon," Ceylon.
 Octave Dupuy, Vice-President, de l'Association des Planteurs de Caoutchouc de l'Indo-Chine.
 H. de Vasconcellos, Consul for Brazil, Southampton.
 Oliphant Devitt, Mincing Lane, London.
 A. Gordon Dickson, Director, Caledonian Rubber Estates of Malaya, Limited.
 Professor Wyndham Dunstan, M. A., LL. D., F. R. S., Imperial Institute, London.
 R. Ehrhardt, Secretary, Association des Planteurs de Caoutchouc, Antwerp.
 Ronald H. Ferguson, Editor "Ceylon Observer," Colombo.
 The Honorable Everhard Fielding, Director, Kuala Lumpur Rubber Co., Limited.
 William Forsythe, ex-Chairman, Planters' Association of Ceylon.
 Walter Fox, late Superintendent Botanical Department, Straits Settlements.
 Dr. Fritz Frank, Scientific Chemist, Berlin.
 G. H. Gollidge, "Gikiyanskand Estate," Ceylon.
 Norman W. Grieve, Ex-President, Ceylon Association, London.
 R. N. Harrison, ex-Chairman, Malay Rubber Planters' Association.
 T. G. Hayes, Director, Ceylon Proprietary Tea Estates Co., Limited.
 William H. Hildreth, Director, A. H. Alden & Co., London.
 Professor Dr. F. Willy Hinrichsen, Berlin-Zehlendorf.
 Louis Hoff, Vereinigte-Gummi-waren-Fabriken, Harburg-Wien, President, Centralverein Deutscher Kautschuk-waren-Fabriken, Berlin.
 Dr. Jacques Huber, Director, Museu Goeldi, Pará, Brazil.
 A. L. Hutchinson, Mincing Lane, London.
 Arthur Lampur, Director, Anglo-Malay Rubber Co., Limited.
 J. E. A. Dicklauder.
 George B. Leechman, Leechman & Co., Ceylon.
 Lewis & Peat, Mincing Lane, London.
 L. L. Loudoun-Shand, Director Hevea Rubber Trust, Limited.
 J. McEwan, Chairman, Batu Caves Rubber Co.
 C. C. McLeod, Director, Kasintoe Rubber Estates, Limited.
 Dr. Eduard Marckwald, Scientific Chemist, Berlin.
 Ch. Moens, London & Rotterdam.
 Sir Daniel Morris, K. C. M. G., D. C. L., D. So., Colonial Office.
 Jac. Musly, Messrs. Weise & Co., Rotterdam.
 T. C. Owen, Director, Associated Tea Estates of Ceylon.
 E. Pollet, Consul General for Belgium, London.
 J. Pompe, Director of Amsterdam Rubber Factory.
 Lieutenant-Colonel D. Prain, M. A., M. B., F. R. S., Director, Royal Gardens, Kew.
 Leslie Radclyffe, A. M. E. C. E.
 A. Slingervoet Ramondt, Amsterdam.
 J. A. Richardson, Southern India.
 T. Ritchie, J. P., Director, Bukit Mertajam Rubber Co., Limited, and many other rubber companies.
 Honorable E. Rosling, Chairman, Planters' Association of Ceylon.
 The Rubber Growers' Association, London.
 H. Kerr Rutherford, Director, Anglo-Ceylon & General Estates Co., Limited, etc., etc.
 E. G. Salmon, Editor "Rubber World."
 Colonel Pedro Saurez, Consul General for Bolivia.
 H. Hamel Smith, Editor "Tropical Life."
 Emil Spannagel, Vereinigte Berlin-Frankfurter Gummiwaren-Fabriken.
 George Springer, Editor "Gummi-Zeitung," Berlin.
 A. G. N. Swart, LL. D., Director of Rubber Planting Companies, The Hague.
 Jos. Torrey, M. A., Ph. D.
 Sir William Treacher, K. C. M. G., ex-Governor British North Borneo.
 Noel Trotter, Director, Highlands and Lowlands Pará Rubber Co., Limited.
 K. H. H. van Bennekom, Hon. Consul for Belgium, The Hague.
 G. van den Kerckhove, Caoutchouc Expert, Brussels.
 S. P. Van Eegen, President, Chamber of Commerce, Amsterdam.
 Professor P. Van Romburgh, Holland.
 F. Alves Vieira, Consul General for Brazil, London.
 J. G. Von Hemert, President of the Association of Surinam, Amsterdam.
 Edmund Walker, Director, The Kianang Produce Co., Limited.
 Professor Robert Wallace, F. R. S. E., F. L. S., Professor of Agriculture, University of Edinburgh.
 Leonard Wray, I. S. C., late Director of Museums, Federated Malay States.
 Herbert Wright, A. R. C. S., I. L. S., Editor "India Rubber Journal," London.

THE COMING MOTOR CAR SHOWS.

GREAT preparations have been made in Madison Square Garden, New York, for the motor car exhibitions that are to be held there during the present month. The first exhibition, which will be confined to passenger cars, will be held from January 6 to 13. The second exhibition, which will be composed of commercial vehicles, will follow immediately and continue from January 15 to 20. Over 200 artists have been at work for many days preparing a proper setting for these two exhibitions. The general color scheme of the interior of the great building will be crimson and gold, and will be exceedingly rich. The management has planned to make these shows, which will be not only the last automobile shows, but the last exhibitions of any sort to be held in the famous old Garden, memorable from every standpoint.

During the first week there will be sixty exhibitors of complete pleasure vehicles, both gasoline and electric types. In addition to these there will be 311 accessory manufacturers and dealers exhibiting and nineteen motorcycle concerns. During the second week, when commercial vehicles only will be displayed, thirty-one companies will show complete motor trucks and business wagons of all sorts and sizes, while practically the same number of accessory makers will be represented as at the previous week.

There will be a great many novelties exhibited in cars this year in the way of additional comfort for the passenger, like various heating apparatus, and one exhibitor will show an ice water tank made to be fitted just back of the front seat.

There will be a second exhibition of combined passenger and commercial cars at Grand Central Palace, New York's handsome exposition building, running from January 10 to 17.

The Garden show is restricted to members of the old Association of Licensed Automobile Manufacturers and makers of electric vehicles who have been exhibitors at Madison Square Garden for the last five years or more. The Grand Central Palace show is "open" to all manufacturers, but will not include displays by makers who have exhibits in the Garden.

From January 27 to February 3 there will be a passenger car exhibition, and from February 5 to 10 a commercial vehicle exhibition in the Coliseum and First Regiment Armory, Chicago. All manufacturers are eligible for the Chicago show, which is the only one that will be held in that city, and it will include exhibits by most of the makers who display at the New York shows.

During the two weeks' show period in New York more than 100 different makes of passenger cars and 70 makes of work vehicles will be on exhibition simultaneously. In Chicago more than 90 makes of pleasure cars will be shown during the week of January 27 to February 3, and the following week more than 60 different makes of business machines will be exhibited.

The educational advantages of these big shows are very obvious, as all the principal makes of trucks and delivery wagons can be examined and compared as to design, workmanship and price. There the experts of a dozen or more companies may be consulted without incurring any obligation to buy from any company that confers the favor of such advice. It will be possible in one or two days' time to gather information at the shows that would require months of effort to acquire in any other way. In all, fully ninety different companies will display their newest models this winter, among which will be many never before in the market.

The Firestone Tire and Rubber Co., Akron, Ohio, is very well pleased, and with cause, at the record made by "Jack" Handley, of New York, who recently took a twenty-five day run from that city to San Francisco, going through the Royal Gorge, Rattoon Pass, and over the Glorietta Mountains, where the roads are not particularly smooth and even, and arrived at the end of his trip without a puncture or a blow-out.

THE AMERICAN CONSUMPTION OF GOLF BALLS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The number of golf balls manufactured in this country every year is a trifle over 100,000 dozen, in fact, the figures will not exceed 110,000, and if you name the latter figure, you may feel sure that you are within 5 per cent. of the correct amount, possibly even closer than this. Naturally, this is somewhat different from one million dozen.

I should think that England used two or three times more than we do here. This is easily accounted for, because the English people play far more golf during the week than we do in this country where golf is largely confined to Saturdays and Sundays.

You may also be interested to know, and you can state this, if you wish, in your January issue, that the price of golf balls will be reduced this year, the cheapest grade going back to the old price of \$6 per dozen, or 50 cents each at retail. We were compelled to make an advance on account of the increased cost of rubber, and this advance having held for two years, we now return to the old figures.

Daily papers love to publish sensational figures, and really no one cares, but a trade paper like your own, which is considered an absolute authority, and which is so considered by this firm, copies of it being constantly carried on file not only here, but at our factory, should publish only facts, and these facts regarding the athletic goods business, I am always prepared to give you. Yours very respectfully,

JULIAN W. CURTISS.

Second vice-president, A. G. Spalding & Bros.

A NEW USE FOR GARDEN HOSE.

AN inventive member of Engine Company 23, New York, has devised an altogether new use for garden hose, and, if it proves successful, a very important use; namely, to supply



RUBBER NOSE GUARDS FOR FIREMEN.

firemen who are working in the smoke of a burning building, with fresh air. The method is as follows:

A length of garden hose is attached to the water hose, one end, which is covered with a screen so that nothing but air can enter, being outside of the building. The other end, which is attached close to the nozzle of the hose pipe, is carried into the

building with the firemen. It is a well-known principle of physics, that the high pressure of the stream as it leaves the nozzle of the hose, creates a temporary vacuum at that point. The result is, that air from the outside rushes through this hose to fill this vacuum. Attached to the inside of the garden hose are several small tubes a few feet long, having at their other end a device similar to the nose-guard worn by football players. This nose-guard fits tightly over the fireman's nose, being held in position by the teeth. When the firemen wear these devices, they can get a supply of pure air in the midst of the densest smoke. The invention has been tested several times by New York firemen, with satisfactory results. If further tests confirm the good opinion created by the tests already made, the device is likely to be adopted generally.

A NEW COMMITTEE ON RUBBER ANALYSIS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: It is a well-recognized fact that the art of analyzing rubber compounds has not reached the state of perfection which the commercial importance of rubber products seems to warrant. Various chemists have developed methods of analysis possessing more or less merit, but at the present time these methods cannot be relied upon to give concordant results. Users of rubber insulated wire are particularly interested in the analysis of rubber compounds owing to the recent practice of inserting chemical clauses into specifications. The manufacturers are equally interested, because in the present state of the art they are likely to have insulation refused by their customers, not because it is defective, but because some unforeseen method of chemical analysis indicates that the specifications have not been complied with. Chemists are interested not only in the scientific aspects of the problem, but also in its commercial aspects, because the chemical specification for rubber, with all it implies in its relation to chemists, will drop out of use unless the chemists are able to stand back of it with an analysis that cannot be controverted. Realizing these conditions, Mr. E. B. Katte, chief engineer of electric traction of the New York Central Railroad, invited a number of prominent manufacturers, consumers and chemists to a conference, at which the subject of rubber specifications could be discussed and steps taken to secure the desired uniformity in rubber analysis.

The conference was held on December 7 at 335 Madison avenue, the attendance including representatives of the United States Army, the New York Central Railroad, the Pennsylvania Railroad, the General Electric Company, the Standard Underground Cable Company, the Simplex Electrical Company, the Hazard Manufacturing Company, the American Chemical Society and several chemists who have made a specialty of rubber analysis. Major Samuel Reber was elected chairman, and after a discussion of the various aspects of the problem the following committee was nominated to determine a standard procedure in the analysis of rubber compounds:

Mr. H. B. Rodman, chemist, Pennsylvania Railroad, Altoona, Pennsylvania.

Mr. C. R. Boggs, chemist, Simplex Electrical Company, Cambridge, Massachusetts.

Mr. W. B. Gieser, chemist, New York Central Railroad, Albany, New York.

Mr. P. Poetschke, chemist, the Lederle Laboratories, 39 West Thirty-eighth street, New York.

Mr. James P. Millwood, consulting chemist, 246 Willoughby avenue, Brooklyn, New York.

Mr. Wallace Clark, head of the wire and cable department of the General Electric Company, Schenectady, New York.

Mr. W. A. Del Mar, assistant engineer, New York Central Railroad, 335 Madison avenue, New York.

The work of the committee will be largely in the nature of laboratory tests and comparison of results by correspondence and periodic meetings.—W. A. DEL MAR, Secretary.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

AN INDEX to the improved condition of trade generally is to be seen in the rise in ocean freights. Ship owners after a long period of grumbling are now obtaining very satisfactory rates, owing to the shortage of available tonnage. They don't flatter themselves that the present spell of activity will

TRADE CONDITIONS.

prove lasting, but still they are too jubilant at the moment to indulge in gloomy forecasts of what the future may have in store. Activity in shipping, of course, has its effect upon stores among which mechanical rubber goods hold an important place. Another revival which deserves mention is the important though more local industry of Lancashire. This trade, owing to the high price of the raw material, has been in a depressed condition for quite a long time. Now, however, with the fall in price of cotton a great improvement, amounting almost to a boom, has taken place. Mills are filled up with orders for six or nine months ahead, and even those new mills which sprang up like mushrooms during the last boom of five or six years ago, and which were never put into commission, have now hurriedly been got into working order. In one way the rubber manufacturers are suffering because they cannot get their orders for cotton cloth filled as quickly as they would like. On the other hand, the boom, of course, means an increased demand for the mechanical and other rubber goods used in the cotton manufacturing industry. As a set-off to the cotton revival the engineering trades generally are very quiet, many large engine makers being glad to take orders at almost any price in order to keep their works going. Turning to the raw rubber market, what is agitating the minds of directors of plantation companies is the fact that rubber remains at a comparatively low figure. The explanation seems to be that at the boom time the manufacturers somewhat lost their heads and bought in advance at any price, so as to cover their requirements in case of further phenomenal prices. They got hit on that occasion and now hold off the market when prices show a tendency to rise beyond a certain figure.

WITH respect to the operations of this company, in extracting rubber from jelutong, the end aimed at seems to have

UNITED MALAYSIAN RUBBER.

been achieved, the rubber having been extracted from the jelutong on a large scale and sold at a satisfactory price. I have often wondered whether the sale of the large amount of resin produced in this process is necessary in order to render the process dividend-paying, and I have further wondered if so, whether a sufficient outlet could be found for it. Now it appears that if the market has hitherto been restricted this will not be the case in the future; that is, if Mr. Carleton Ellis' patent for utilizing it in the manufacture of varnishes for cement turns out as successful as he seems to think it will (see INDIA RUBBER WORLD, November 1, 1911). Mr. Ellis states that this resin, owing to its being unsaponifiable, is well adapted as a base for paint and varnish on material containing free alkali. I know nothing of the amount of such paint or varnish likely to be wanted or whether its adoption will be opposed by vested interests. Anyhow, the project is of some importance and will encourage the producers of jelutong resin until some other proposal is made for its use. Apropos of this it may be mentioned that in earlier days the resin removed from gutta-percha by a big cable company on the Thames was buried in waste ground and when demand for it arose the stuff was disinterred and sold, none now being wasted.

THE volume about which I propose to say a word or two is

not directly connected with rubber, but rather with what are known as plastics, a group of substances of technical importance,

A NEW BOOK.

which are to be discussed in conjunction with rubber at the forthcoming International Congress of Applied Chemistry in New York. The title of the book is the Nitro-cellulose Industry, its author being Edward Chauncey Worden, of Milburn, New Jersey, and the publishers Constable & Co., of London. In its two large volumes is gathered together practically everything of importance concerning the chemistry, manufacture and applications of celluloid and the pyroxilin plastics, an important and growing industry which largely owes its development to American workers. There are several references to rubber in the book, many of them being to old friends in the form of patent compositions designed to oust rubber from some of its applications, but which in the event never caused the rubber manufacturer any uneasiness. It might perhaps have been more useful if the author in his references to the proposed applications of nitro-cellulose compounds in the rubber trade had given his readers some details as to the course of their life; whether, for instance, they soon came to an untimely end or whether they justified their existence for such applications as artificial leather or electrical insulation where the special properties of rubber are not essential. Then in the case of viscose, though this has found a useful application in the artificial silk manufacture, as far as I am aware its use was given up in the mechanical rubber trade after a short period of probation. A feature of the book is its very complete list of patents connected with the numerous applications of celluloid and pyroxilin solutions in such widely diverse bodies as blasting gelatine, celluloid combs, medical plastics, artificial silk, imitation gold leaf, etc. The full description of the various solvents used in the industry has certainly an interest for the rubber manufacturer who, if he was previously ignorant of the celluloid manufacture, might also derive useful hints from the well illustrated chapters on its manufacturing details. Among references to very recent discoveries is one to Bakelite, which is now, I understand, being applied as an insulating material in America. As there is a good deal of scientific interest in this body, it would be interesting to hear something authentic as to the position it has achieved. In connection with this reference I may say that a company called Bakelite Co., Ltd., has been recently registered in London with a capital of £2,500. I may say that the importance of a foreign company forming an English subsidiary must not be judged by the capital, as such companies are often formed in order to comply with the new requirements of the patent laws and are financed by the parent company.

Dr. Worden, I may say, is on the committee of the sub-section for rubber and other plastics of the forthcoming International Congress of Applied Chemistry in New York.

In a recent American official paper on the estimation of sulphur in rubber reference is made to carbonate of barium as a component of rubber goods. Whether the use of this mineral is on a large scale or not in America I do not know, but as far as I know, it is not used in England. Its mineralogical name is Witherite, and its specific gravity is 4.3 against 4.6 in the case of heavy spar, the sulphate of barytes, which has long been used in rubber goods in England. The carbonate is about twice the cost of the sulphate, a fact which is due to its greater rarity. In England there are only two mines yielding carbonate against about twenty yielding sulphate; moreover, those twenty could

BARIUM CARBONATE.

easily be added to if the demand increased, while it would not be at all an easy thing to find another carbonate producer or, at any rate, another one like the big Northumbrian mine, which turns out about 8,000 to 10,000 tons per annum of high quality carbonate. For the manufacture of barium compound, it is easy to understand the advantage of material soluble in acid, but as far as the rubber trade is concerned, I don't quite see what advantage is to be gained by using the higher priced carbonate where plenty of the sulphate is obtainable.

The premature death of Sir Charles Lawes-Wittewronge, Bart, has led to changes in the Millwall Rubber Co. Sir Charles was practically the sole shareholder and had spent or advanced altogether about £53,000, £25,000 of this being represented by a debenture. It is understood that profit would shortly have been made, but up to the present the money has mostly been spent in an extensive series of experiments with the Roux and Karavodigne re-forming patents, which had become the property of the company, and were being perfected under the control of a Frenchman.

According to the latest reports, the staff have had official notice of termination of contracts, but the business is being carried on as usual by the receiver on behalf of the executors, who have not yet had time to settle definitely what will be done in the future. It is, however, considered that the business is too good to be abandoned.

The New Southern Rubber Co., Ltd., has gone into bankruptcy, with liabilities of £2,253, and no assets. This company, whose works are near London, was only formed a few months ago to take over a former concern of much the same title. The business carried on was rubber re-forming under a license granted by the Simplex Rubber Co., the owners of Gare's patents. The Hazel Grove Rubber Co., Ltd., which was formed some months ago to take over Gare's works at Hazel Grove, near Stockport, are now in full swing and report themselves as full of orders.

In the construction of a large temporary building recently erected by the Manchester Corporation on a plot of land hitherto vacant in the center of the city, the Calmon asbestos slates and sheets form an important feature. I believe this the first occasion on which this new material has been thus prominently brought to the notice of the passer-by in this important commercial community.

So far we have not had any wintry weather, and there are but few goloshes on view in the shop windows. Last winter was a very open one, with hardly any snow, and there was no repetition of the rush for goloshes witnessed in the previous winter. Although the golosh is certainly in more general use at the present time than it was a decade back, yet a purchase is rarely made until a heavy fall of snow occurs, the current practice of putting salt on the streets making the rubber a very desirable adjunct to the leather boot.

RUBBER DOINGS IN LONDON.

(By a Special Correspondent.)

THE most notable event which has taken place in London during the last month in connection with rubber is the fit of the blues it has worked up in the Stock Exchange. Brokers and jobbers attached to the Rubber Share Market have allowed themselves to drift into a state of despair, compared with which their depression during the great slump was but a trifling nervous disorder.

In the market itself, the only obvious sign of this demoralizing epidemic that has seized upon the members is the "Nothing Doing" peace and quiet air of the place from morning to night. Oc-

asionally a solitary, gloomy-looking individual may be spotted moping in a corner, but not for many minutes is he allowed to brood over his troubles. Some one soon comes along and slaps him on the back, with a "Cheer up, you'll soon be dead." Or he is made the butt of one of the many practical jokes for which the House is famous. For a most blatant, really aggressive disguise of courage has been popularly adopted as the correct garb for miserable souls during business hours.

Thoroughly to realize how rubber of late has demoralized its share specialists on the London Stock Exchange, it is necessary to live in the same house with one of them, to have the family's privilege of intimate acquaintanceship. At home, their general mood just now is best summed up in that mournful ditty of the dejected street singer, "How I'm cast down!"

In criticising the situation, let me first put the case for the rubber-share specialists as generously as possible. During the "Great Slump," when there was much more reason for the House to be in despair, there was a certain amount of excitement to drive away the blues. Many of the members had to be on the alert, to rack their brains and to bustle about taking active steps of some kind or other to avoid being hammered. There was much wondering as to who would be the next colleague to go under. There was the interest of learning for certain that suspicions had proved justifiable, of saying "I told you so," when this or that company turned out to be rotten to the core. There was a general move of prices, even though it was a downward one. And there was quite a lot of business to be done in the way of selling.

Of late activity of any and every description possible in the market has given place to stagnation. The members have to stand about hour after hour, day after day, doing nothing. Even though a man has enough money to jog along with for some time to come, what can be more depressing than having nothing to do and yet being obliged to stick in one place waiting for the turn of the tide, without any idea as to when it will turn? And if the public does happen to put an odd rubber-share deal in the way of one of its professional representatives, there is practically nothing to be made out of the transaction but commission, for, with but few exceptions, prices are at a standstill. Beyond the dull question as to whether the week's commissions will total up by dribbles to an amount that will cover the week's expenses, what interest is there in such business for the professional dealers? No man in his senses becomes a member of the Stock Exchange unless he is blessed (or cursed?) with the speculative instinct. Heart and soul the elect can throw themselves into a deal of chance. Little wonder, then, that they are tempted to feel that the present monotonous game is a dreary business. Many of the victims are talking of giving up the game altogether, of emigrating to Canada, or Australia, or anywhere where they can make a fresh start at earning a living by some other way of work. But truth to tell, this is mere talk, just the latest hobby for passing the idle time away. The man who had to take himself at his word in regard to such proposals would indeed be more sorry for himself than he is at present—and that is saying a good deal. They all mean to hang on as long as they can to the one profession which is thoroughly congenial to them. And if the tide has not turned by the spring, when subscriptions to the House become due again, even the poorest of them will do his level best to get together enough money to pay up for another year's chance. And this fact brings me to my case against them for their present indulgence in an epidemic of the blues.

Since they are all so determined to play Micawber, why not look on the bright side? And really there is a pretty bright side to rubber conditions as a whole just now. The stagnation in share dealing means not only that the public do not want to buy rubber shares at the moment, but that holders are anxious not to give up their partnerships in rubber-growing ventures. Why, if things are as bad as the Stock Exchange would have us believe, is not the Share Market glutted with sellers? Why is not ton after ton

of scrip becoming worthless, as in the "Great Slump" time, instead of remaining steady at quite a decent, all-round figure—ay, even at a really good price, seeing that the plantation rubber industry is still barely out of its infancy.

Apparently, the public are getting back their faith in this industry. Seeing how completely their confidence in it was shaken—although their own folly was mainly responsible for such a catastrophe—is it not rather marvelous that they should already be showing such renewed trust in plantation rubber? Is it not a good sign that they have stopped glutting the market with shares, and so giving a few people, who are thoroughly in the "know," the chance of buying up all the good ones at a next-to-nothing price? For what can this general hanging-on to rubber shares mean except a renewal of faith? Many people must be making sacrifices to keep their stock. And why? Certainly not because they think it will depreciate. Rather they must be arguing, from the general knowledge they are gradually picking up about the whole situation as between wild and cultivated rubber, that there are likely to be more firework interludes before the critical battle takes place; or the speculative attitude of outsiders to the plantation rubber industry may at last be giving place to the more healthy feeling that it has now won the right to be looked upon as an investment. In any case, the public seem to be shaking off their fit of the blues over rubber. It is not, therefore, bad policy for the professional share dealers to be gloomy during such an important period of convalescence for their clients?

As a relief to the nothing-doing-in-general atmosphere of the rubber share market, there have been a few noteworthy activities. The best rise of the month has been in Kuala Lumpurs (£5½-£6½). Evidently the public have spotted the good points in this company's latest report, although they had to take their chance of being overshadowed by a decrease of profit on the year's output, as compared with the previous year's returns. The most sensational drop has been in Tangkabs. In view of the startling suggestion for raising further capital that has been proposed by the directors of this company, it is not at all surprising that the shares should have fallen in one day from 11/3d to 2/6d. This scheme has been so widely discussed that there is no need for me even to outline it. Suffice to say that the proposed Irredeemable Second Debentures are very expensive straws with which to invite the shareholders to save themselves. The most auspicious flotation has been Pegoh, Limited, with property in Malacca. The shares allocated for public issue were offered for subscription at a premium of 10/; they were eagerly taken up, and have since risen a further 8/9d.—quite a record state of affairs in these days. Linggis have hardened slightly, but the attitude of the market towards them is shown by the fact that a call can still be obtained on them for 1/6d., at the current price, up to the end of the year.

Prices have varied but little at the auctions. Hard Pará has fluctuated during the last month between 4/3d. and 4/5½d. The highest prices fetched by plantation rubber during this period has been between 4/7d. and 4/10¼d. Judging by the latest sales, business is inclined to be more brisk, and prices have a tendency to harden. The demand still favors plantation grades. At the last fortnightly sales held at the London Commercial Sale Rooms, Mincing Lane, E. C., the record quantity of 545 tons of plantation rubber was offered. The best price was made by Pale Crêpe, which sold up to 4/10¼d. Lanadron Block came next, fetching 4/9¾d; then Highland Smoked Sheets at 4/9½d, and Vallambrosa Smoked Sheets at 4/9¼d. A general fall of 2d. in smoked sheets was a feature of the sales.

NEW ANTWERP-BRAZIL STEAM LINE.

ACCORDING to Brussels advices, a new line of steamers (outside the Conference) is about to be established between Antwerp and Brazilian ports by the firm of Siebert & Co. It is understood that the firm of Horn & Co., Hamburg, will be associated in the enterprise.

SOME RUBBER INTERESTS IN EUROPE.

THE LONDON CYCLE AND MOTORCYCLE EXHIBITION.

THE management certainly has every reason to feel gratified at the success of the Second International Cycle and Motorcycle Exhibition held in Olympia, London, from November 20 to 25. It was a success from every standpoint, the number of exhibitors, the size of the exhibition and the number of visitors being much larger than a year ago.

The exhibition included everything connected with the cycle and motorcycle manufacturing trade. Some idea of the number of exhibitors may be obtained from the fact that the exhibition catalogue comprised 256 pages.

Among the exhibitors were the B. F. Goodrich Co., Ltd., which made a fine display of motorcycle covers, endless tubes, patches, horn bulbs, lamp tubing, and cycle tubes, besides various other accessories.

The North British Rubber Co., Ltd., of Edinburgh, also had a most interesting exhibit, including the famous "Clincher" cycle and motorcycle tires, showing the "Featherweight," the "Carrier" and the "Dreadnought" brands.

An interesting feature of the exhibition was the excellent programme of music rendered at intervals during the afternoon and evening, from 2 to 9.45 p. m., by the Coldstream Guards Band.

THE DUNLOP RUBBER CO.'S REPORT.

More than usual interest attaches to the report of the Dunlop Rubber Co., Ltd., for the business year ending August 31, last. Reference is made to the abnormal variations which had again taken place in the price of rubber, ranging from the equivalent of \$2.01 on September 1, 1910, to \$1.13½ on August 31, 1911. It is remarked that the latter figure may be regarded as approaching the normal conditions of 1907 and 1908, the two years previous to the rubber boom; the average prices having equaled in the former year \$1.07½ and in the latter \$1.01½. The view is expressed that fluctuations on the recent scale are hardly likely to occur again; the directors being of opinion that the company's business will now resume its normal course.

Owing to having had to work up high priced rubber in the production of reserve stock, the trading profits of the company were adversely affected during the business year 1910-1911, by the sale of this stock upon a rapidly falling raw rubber market. This difficulty having been anticipated by the creation of a "Rubber Fluctuation Reserve" equaling \$500,000, the funds at the disposal of the directors are sufficient to pay in dividends the same amount as last year.

DISTINCTION FOR A RUBBER MERCHANT.

"LA METROPOLE," of Antwerp, calls attention to the fact that the King of Belgium, in recognition of the services rendered by him to the cause of Belgian colonization, has created M. Willy Van de Velde a Chevalier of the Order of Leopold. This gentleman has long been a prominent figure in the commercial life of Antwerp, being president of the company which acquired the business of the old firm of L. & W. Van de Velde, of that city. He is likewise identified with various companies operating in Katanga and the eastern portion of Belgian Congo.

CHANGE IN AN AMSTERDAM RUBBER FIRM.

F. JOOSTEN, the well-known Amsterdam rubber broker, announces that Ernest Janssen has joined him as partner, the style of the new firm being Joosten & Janssen.

They are distributing a placard giving the dates of the 1912 Amsterdam auctions, which are: January 19, February 16, March 15, April 12, May 10, June 21, July 19, September 20, October 18, November 15 and December 11. Catalogues will in each case be issued fifteen days previous to the above dates; entries closing five days earlier still.

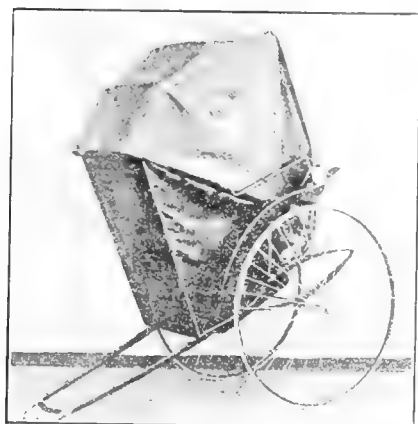
The Rubber Industry of Japan.

(By our Special Correspondent.)

JAPANESE JINRIKISHAS AND RUBBER TIRES.

JAPAN exported in 1910 jinrikishas to the number of 14,197, of the value of \$209,177; as compared with 9,004, worth \$133,399 in 1909; this increase being mainly the result of the development of rubber cultivation in the Malay Peninsula and

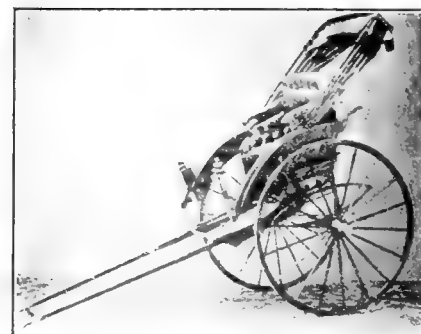
well as the B. K. tire. The latest incident regarding imported tires, is a recent advertisement in the leading Tokyo papers, to the effect that the Hartford Rubber Manufacturing Co. is importing jinrikisha tires into Putaba-ya Tokyo. Four-fifths of the above-named 65 per cent. of tires produced by foreign makers



JINRIKISHA FOR ONE PERSON.



JINRIKISHA FOR TWO PERSONS.



JINRIKISHA FOR ONE PERSON.

Southern India. The demand was largely due to the fact that many local workers and tappers, not finding employment in their regular avocations, had become jinrikishamen; another reason being that the establishment and development of rubber plantations was in many cases so rapid and successful as to require many jinrikishas for traveling around. The exact figures are as follows:

JAPANESE EXPORTS OF JINRIKISHAS.

	1909.		1910.	
	Number.	Value.	Number.	Value.
China	1,275	\$21,086	1,286	\$21,548
Corea	426	6,423	218	3,289
British India	685	13,503	1,406	31,172
Straits Settlements	6,396	86,361	11,027	148,128
All other countries.....	222	6,026	260	5,040
	9,004	\$133,399	14,197	\$209,177

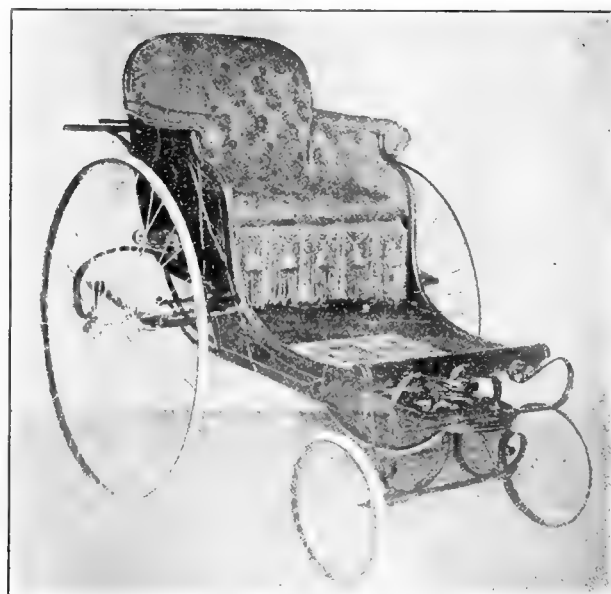
During 1911 the exports of jinrikishas have been less than those of 1910.

Of the jinrikishas exported from Japan, 50 per cent. have iron tires and 30 per cent. solid rubber tires; the remaining 20 per cent. being without tires. These go to the Malay Peninsula and Southern India, where they are supplied with tires which have been directly imported to those markets from England.

At Tokyo there are now about 40,000 jinrikishas, 70 per cent. of which are owned by jinrikisha men, stationed at the corners of streets, while 30 per cent. belong to private individuals, by whom they are used exclusively. Of the above-named 40,000 vehicles, 90 per cent. have rubber tires (only few of them pneumatic); 10 per cent. having iron tires. Of the Japanese consumption of solid rubber tires, 65 per cent. are manufactured by foreign houses (European and American); those of the B. F. Goodrich Co. being made in the United States, and those of the Dunlop Rubber Co. and the Ingram Rubber Co. in Japan; as

are being supplied by the Dunlop Rubber Co.'s Japanese factory. The remaining 35 per cent. of the consumption of jinrikisha rubber tires is made by Japanese manufacturers.

Prices of Japanese solid rubber tires for jinrikishas usually range from \$3.50 or \$4 each to \$6 each, or from \$7 to \$7.50 for superior quality. The manufactures of foreign concerns sell from \$7.75 to \$10.75 (a common wholesale price being \$10.25).



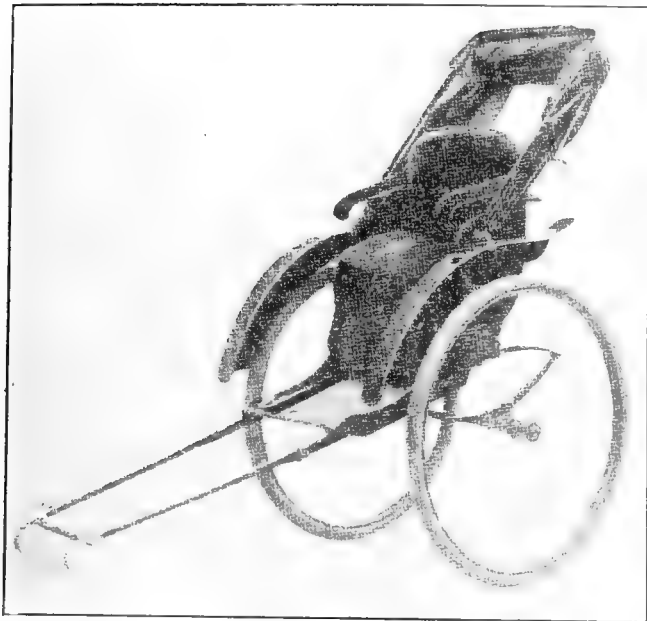
JINRIKISHA BUILT FOR THE IMPERIAL HOUSEHOLD.

A few solid rubber tires of extra quality sell as high as \$19 each, one inch in width; the few tires sold above that price by foreign

houses being charged at \$1 or \$1.25 per pound. The quantity of pneumatic tires sold is limited, as already mentioned.

Most of the solid rubber tires used (both Japanese and foreign) are $\frac{3}{4}$ inch in width, while a few $\frac{7}{8}$ -inch tires are used by rich men; none by the jinrikisha men.

Tires made by foreign manufacturers are used in Japan, notwithstanding their higher price, caused by the heavy duty, because they are three times as durable as those of Japanese makers. The Japanese roads have many pebbles on the surface and are very muddy in rainy weather, so the durability of the tires is an important matter.



JINRIKISHA FOR ONE PERSON.

As to why Japanese tires rank below foreign ones, it is generally considered that the Japanese manufacturers are deficient in skill, but on this point, M. A. Staines Manders writes about the exhibit in London of bicycle tires by the Nippon Gomu Co.:

"It was stated by several manufacturers that the tires were not made in Japan, but probably on the continent. I advised many that I had the assurance that the goods were of Japanese make. One important manufacturer said, if it was so, the tires were of splendid manufacture, equal to European."

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of the values of exports of manufactures of india-rubber and gutta-percha for the month of October, 1911, and for the first ten months of five calendar years:

MONTHS:	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
October, 1911.....	\$207,713	\$138,183	\$532,129	\$878,025
January-September ..	1,701,441	1,349,380	5,402,984	8,453,805
Total, 1911.....	\$1,909,150	\$1,487,563	\$5,935,113	\$9,331,830
Total, 1910.....	1,759,590	1,906,961	4,687,399	8,353,950
Total, 1909.....	1,469,272	1,288,705	3,478,438	6,236,415
Total, 1908.....	1,049,641	1,157,136	2,940,309	5,147,086
Total, 1907.....	1,168,648	1,401,890	3,345,209	5,915,747

THE above heading, "All Other Rubber," for the month of October, 1911, and for the first nine months of the current years, includes the following details relating to tires:

MONTHS.	For Automobile.	All Other.	TOTAL.
October, 1911.....	values \$138,744	\$43,714	\$182,458
January-September	1,941,773	437,201	2,378,974
Total, 1911.....	\$2,080,517	\$480,915	\$2,561,432

NOTES FROM BRITISH GUIANA.

(By Our Special Correspondent.)

A GOVERNMENT BALATA COMMITTEE SOLUTION OF PRESSING DIFFICULTIES.

MUCH interest is being manifested in the proceedings of the Balata Committee which has been appointed by the government to inquire into the troubles of the industry. Included in the terms of reference are the labor difficulties, the question of communication, and the proposal to cut down balata trees, mentioned in the November issue of THE INDIA RUBBER WORLD. It is admitted, that if the committee solves all these problems satisfactorily, it will have accomplished a large and difficult task, and it will do much to plant the industry on a firmer footing than it occupies at the present time. Labor difficulties are accentuated by the need of different means of communication; the easy journeys into the interior by way of the rivers, which, owing to the number of waterfalls and cataracts, are only navigable for the smallest boats, rendering it possible for the labor forces to take liberties that would not be possible where more rapid communications are available. A meeting of the British Guiana Balata Association was held at the offices of the Essequibo Rubber and Tobacco Estates, Limited, Georgetown, to consider the association's attitude with regard to the government committee. There were present representatives of Ed. Maurer, The Consolidated Rubber and Balata Estates, Limited, The Amsterdam Balata Co., The British Guiana Balata Co., The Essequibo Rubber and Tobacco Estates, Limited, The British Guiana Bank, Messrs. Sproston, Limited, and of other concerns. It was stated that the government committee would have the power to summon witnesses and take their evidence on oath. It was decided that the government should be informed that the association was prepared to give all the assistance possible. In the course of the discussion the chairman, J. A. King, crown solicitor, remarked that the committee had been appointed by the government not merely upon the recommendation of the British Guiana Balata Association, but, he had reason to believe, upon representations from the United States and British governments.

COMMUNICATION WITH THE INTERIOR—TELEPHONES AND WIRELESS.

The question of communication with the interior was also discussed at this meeting. The chairman referred to the report of Mr. Daley, manager of the Essequibo Rubber and Tobacco Estates, Limited, upon the establishment of wireless telegraphy, and stated that it appeared that a certain firm had said that it was prepared to establish five wireless stations in the interior. He proposed that the firm be asked to make a definite offer. It was also decided to write to certain firms inquiring the cost of an ordinary telegraphic and telephonic system. Mr. Seldon, a director of the Consolidated Rubber and Balata Estates, Limited, who is at present visiting the colony, was present at the meeting, and said that he had personally superintended the putting up of 250 miles of wires for telephones in the east, under conditions very similar to those obtaining in this colony, and that the total cost was only \$4,500.

A SURVEY OF THE INTERIOR—A ROAD SUGGESTED.

The government is at the present time engaged upon a survey of the colony from Rockstone to the Potaro for the purpose of railway construction, and it was resolved at this meeting of the association to ask that the survey be continued as far as the Rupununi, which would include some of the richest balata areas. It was pointed out that if the government would undertake such an extension of its task it would be laying the foundation for a permanent road later on.

The first need of the colony at the present time, if the industries of the interior are to be satisfactorily conducted, is a

railway either to the Brazilian frontier, or to districts of known commercial value, and this is one of the main issues upon which the present elections to the legislature are being fought. There is, however, very little difference of opinion with regard to the necessity of such a railway, and it is almost certain that the new combined court, as the local legislature is called, will be pledged Combined Court, as the local scheme for accomplishing that end. The promise of the secretary of state to send to this colony an administrator of "proved constructive ability," in succession to the governor who has just relinquished the reins of office, has galvanized public opinion on this matter, to an encouraging degree.

RAILWAY CONSTRUCTION—HOW BALATA INDUSTRY IS AFFECTED.

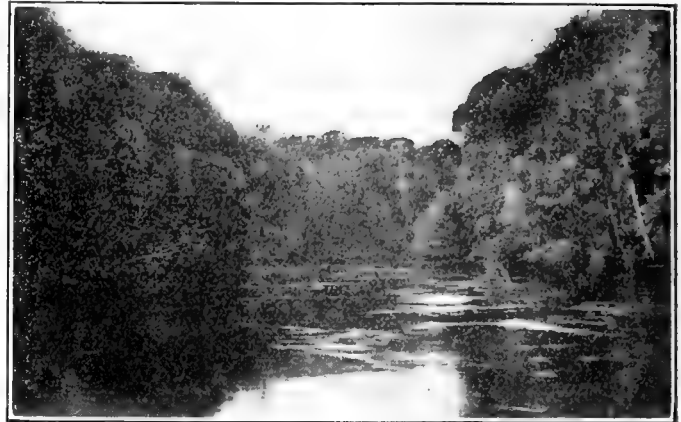
Apropos of a railway, George Garnett, who was at one time largely interested in the balata industry, and who has already been elected a member of the Combined Court unopposed, delivered an interesting lecture in the Town Hall, Georgetown, on November 13, upon a scheme which he has elaborated. He suggests that a railway should be run to the Brazilian frontier from Georgetown up to the Potaro valley to the Kaieteur Fall, and thence to Boa Vista, Brazil, thus cutting the colony in two. He estimates the cost at \$17,500 per mile (which is regarded as an optimistic estimate here), and, taking the total distance at 250 miles, the capital cost would be \$4,375,000. Interest at 3½ per cent. would in round figures be \$150,000. "Where would the traffic come from?" he asks. "Gold-diggers, balata bleeders and timber people," he replied. With reference to balata he said: "The Siparuni-Rupununi district produces at present over 700,000 pounds of balata. Given easier access, especially if the cutting of old trees be allowed, this could easily be increased to 1,500,000 pounds or more. The cheapening of freight would be fully equal to 8 cents per pound on the cost of production, besides the most important point of view of supervision. A tax of 4 cents per pound would, I believe, willingly be paid, and this would reach a total of \$60,000. Taking it that in the gold, balata and timber industries only, 5,000 additional men were employed, or considerably less than the difference in the number now employed and the number which was employed in 1905, and remembering also how tremendously the revenue benefited when gold was at its zenith, a rough calculation can be made of the probable revenue that would come to the government from the earnings of the people. The balata bleeders could earn on 800,000 pounds



INDIAN BANAB, PURUNI RIVER, B. G.

(being the difference between what I consider could easily be produced and what is now produced in those districts) about \$180,000. Supposing 4,000 men to be working at gold, timber, etc.,

for, say, 250 days; in seven years they would probably earn somewhere in the neighborhood of \$600,000, or a total of \$780,000. Taking three-fourths of this to be spent on food, clothing, liquor, etc., and taking the incidence of taxation at only 25 per



PURUNI RIVER, B. G.

cent., the revenue should benefit to the extent of \$147,000." Mr. Garnett's lecture was received with a great deal of enthusiasm by a large audience.

RUBBER SCIENCE IN DEPARTMENT OF AGRICULTURE.

Henry Daley, manager of the Essequibo Rubber & Tobacco Estates, Limited, in a letter which appeared in the local newspapers ventilates what appears to be an undoubted grievance. He points out that some weeks ago the Assistant Director of Science and Agriculture, S. H. Bayley, and other officers of the department inspected the estates under the Rubber-Planting Leases Regulations. Subsequently he wrote to Professor Harrison, Director of Science and Agriculture, asking "whether it is possible to secure a copy of the report made by the Commission of the Agricultural Department that visited Liberty Estates some weeks ago. Doubtlessly, the commission could give us valuable information as to whether the present scheme of planting and drainage is correct, in their estimation. Also with their experience, they might possibly make some suggestions that will enable us to more effectually develop these islands. I have approached you on this matter, as I know you are greatly interested in seeing the rubber plantations of this colony turn out a success. I can assure you that there is, pending certain inspections of land this year, every probability of a new company undertaking the planting of *Hevea* on a very large scale, should these inspections be satisfactory." He was informed in reply that the department regretted being prohibited from divulging the contents of official reports. "I understand the same answer has been given to similar applications made by the Consolidated Rubber & Balata Estates, Limited, and the Bartica Agricultural Estates, Limited," says Mr. Daley. "Why? I understood the Department of Science and Agriculture is in existence to give information and help to planters. When three gentlemen of the experience of the inspecting Commission visit an estate together, their joint impressions and opinions must be of the utmost value to planters, and I can certainly see no object in withholding their report. If this is to be the attitude of the government it is time for planters of rubber here to look around for pastures new."

MORE AMERICAN CAPITAL IN BRITISH GUIANA.

An American syndicate has acquired the property of John Junor (known as "Plantation Vreedstein"), on the left bank of the Demerara River, for the purpose of cultivating rubber. The plantation will be operated under the direction of G. S. Hayes, by a local corporation, which has been formed under the style of the Vreedstein Plantation Company.

Some Notes on Rubber Planting

THE ENGLISH PRESS AND ASIATIC RUBBER PRODUCTION.

IN summarizing before leaving for Europe the results of his recent journey through the Middle East, Mr. E. L. Killick, special representative of the "Financier," of London, expressed the view that the potentialities and absolute soundness of the rubber growing industry are not fully appreciated by the public in general. He saw nothing insurmountable in the apprehensions of labor complications, disease, etc., and considered the only real troubles, from the point of view of investors, are those arising from the over-capitalization of properties during the boom.

Dealing with the various sections covered, he stated that British Malaya compares favorably with Java and Sumatra. While the soil of the latter is superior, the climate on the best estates in Selangor and Negri Sembilan (an infinitely more important consideration) could not be surpassed. Java did not keep up with Malaya, and its rubber would not, in his opinion, do much, except in a few isolated cases.

Ceylon, Mr. Killick remarked, compares favorably with all other places, while the cost at that point will always be low in comparison with a good many sources of rubber. Ceylon rubber he considers "as good as any."

On the crucial subject of estimated production Mr. Killick favors the more recent views which tend to make the figure much lower than had at first been predicted. In his own words, "The cry of over-production and the fears expressed of a fall of prices to an unremunerative level, are nothing more than a bogey."

The interest felt in rubber by the British investing public is shown by the fact that Mr. Killick's tour is being followed by that of Mr. F. W. Knocker (formerly an official in the Civil Service of the Federated Malay States), who is going over the same ground, as a special correspondent of the "Financial News," of London.

THE TRAINING OF PLANTERS.

IN commenting upon a suggestion for the establishment of a College of Tropical Agriculture either in England or Ceylon, a local correspondent of the "Malay Mail" suggests as a counter proposal the formation of an "Institute of Tropical Planters," with headquarters in London and with branches in the Federated Malay States and Ceylon. There would be three grades, students, associates and members. A student who displayed the necessary preliminary qualifications would be sent out at his own expense to one of the affiliated estates in Malaya or Ceylon, where he would remain six to twelve months, on a small salary, studying the various branches of planting, in addition to native languages, management of labor and kindred subjects. At the end of the time named, provided he could prove his acquaintance with the details of planting, he would be eligible for associateship in which grade he would have to pass three to five years before he would be entitled to full membership.

Owing to the fact of many retired planters living in England, the centralization of such an institute would be of advantage, while the co-operation of the men controlling the finances of Malaya would also be secured. These considerations, it is remarked, are becoming more and more important, now that rubber planting has settled down into a steady industry.

The comprehensive and exceedingly informing chapter on rubber in the report from the Federated Malay States for the year 1910, to which reference has been made in recent issues of THE INDIA RUBBER WORLD, was prepared by the Director of Agriculture, L. Lewton-Brain.

OLD AND YOUNG RUBBER.

INTEREST attaches to an opinion expressed at the recent London meeting of the Kwaloe Rubber Estates, Limited, by the chairman, Mr. Richard J. Hoffmann, who had lately returned from the East. According to his view, if he had to choose between rubber five or six years old as yet untapped, and rubber eleven or twelve years old, he would certainly choose the younger plantation. This opinion is based on the fact that most of the older trees would have suffered from thinning out, intended to remedy too close original planting, as well as from irregularity in methods of tapping. By modern methods that operation is less drastic in character. Hence, Mr. Hoffmann remarked, the trees of the rising generation should have a longer life and should give better yields.

DRYING CREPE.

OWING to several parcels of thick crêpe having recently arrived in London, not thoroughly dried, and the preference usually accorded that grade has been less marked than usual. Messrs. Gow, Wilson and Stanton, Limited, of London, have, in a recent circular, advised rubber planters not to pack pure crêpe until thoroughly dried; while, if this cannot be relied upon, it is far better to roll the crêpe out thinner.

COMPARISON OF CEYLON AND MALAYA FINANCES.

AMONG other points in which Malaya seems to have been successfully employing modern methods, is that of government finance. In comparing the results thus obtained with those of the sister colony, the "Ceylon Observer" calls attention to the mistake in the latter case of not funding separately the proceeds of all land sales, the latter forming the "capital" of the colony. It is added that:

"We in Ceylon were too late in realizing the importance of these financial administrative steps . . . and now they have (in Malaya) nearly as many miles of railway as we have—but *all free of any debt!* and plenty of money to go on extending."

RUBBER AND RELIGION.

SEEING the profits of rubber investors, and with appropriate reference to their source, the Bishop of Singapore appeals to shareholders in rubber companies to contribute funds for the purchase of motor cars, to be used by the clergy in the Malay Peninsula. The various estates are long distances apart, without railway facilities, so that the converted Chinamen, Tamils, Malays and Indians are in danger of relapsing into heathenism.

MALAYA FUTURE PRODUCTION OVER-ESTIMATED?

While Sir John Anderson's estimate of 70,000 tons as the Malayan production for 1916 has come to be more or less regarded as an official standard, having been practically confirmed by the independent estimates quoted in Mr. Figart's recent consular report, it has been criticised by Mr. H. L. Coghlan, of Singapore, now in England. He states in a letter to the London "Globe" that the estimate in question was based on an anticipated boom in the fall of 1910 which never materialized.

The prospective result of this turn in the market is emphasized in Mr. Coghlan's expectation that at least 40 per cent. of the "boom" plantings will not reach maturity. He considers it would be nearer the mark to divide recent estimates by 2, particularly in the case of smaller concerns without plenty of available working cable.

NEW PROCESS OF RUBBER TAPPING.

IN a communication to the press, Mr. J. Sheridan Patterson, of Warwick, Ambawella, Ceylon, calls attention to a new system of tapping introduced by him. The originality of the plan is

based on allowing for the annual increase in the girth of the tree, and upon dividing into thirds, instead of fourths, with a view to leaving a strip of untapped bark to perform the functions necessary for the nutriment of the tree. It is claimed that the system works out well, being elastic in character, and enabling a young tree to be profitably tapped when 16 to 18 inches in girth at three feet from the ground. It is, moreover, said to be adaptable to any district or elevation, while the period of renewal can be extended from three years to six years, as desired.

From further details given, it would seem that the leaving of the untapped section increases the yield, and must in any case prove beneficial to the tree.

RUBBER IN PORTUGUESE EAST AFRICA.

ADVICES from Beira state that owing to the position of the rubber market many of the large concessions obtained during the "boom" period will probably remain indefinitely undeveloped. Only three seem at all likely to be worked, each from 200,000 to 250,000 acres in extent. In one case a company has been incorporated and floated, but the property is chiefly devoted to sugar cultivation. Rubber is, however, now being collected on another larger concession, which is expected to become a basis for incorporation at an early date.

RUBBER CULTIVATION IN THE BELGIAN CONGO.

Efforts are being made by the Belgian Government to profit, for the benefit of the Congo plantations, by the experience acquired by Asiatic planters. Four experts, it is officially reported, have been despatched to Malaya and British India for the purpose of studying the methods of cultivation practiced there on a large scale, including the questions of irrigation and of how to combat the various diseases of rubber plants.

One of these experts, a mycologist, is gathering information in Pusa (Calcutta) as to the establishment of phytopathological laboratories. From that point he will proceed to visit the laboratories at Kuala Lumpur, Buitenzorg and other locations. Two others of the party, agriculturists, will study the accessory questions of Indian coffee, cacao and rice culture. The fourth expert will devote himself to the subjects of *Hevea* cultivation, the extraction of latex and its conversion into rubber, on typical Malaya and Ceylon estates.

In the Congo itself, the authorities have been busy, an experimental plantation having been established at Zambi (Lower Congo). A new botanical garden has been opened at the same point.

By the end of the year 1911, it was anticipated that about 2,800 acres would be planted in the Belgian Congo with rubber, about two-thirds in *Hevea* and the balance in *Funtumia Elastica* and *Manihot Glaziovii*. It is, however, contemplated to abstain from further plantings of *Funtumia*, as the yield of this species is too small in proportion to that of *Hevea*.

With regard to the prospects of *Hevea* culture the report adds: "*Hevea* seems to show a normal development within the limits of the great primeval forest. Over 50,000 acres of suitable character have been surveyed in the equatorial district, while there are more than 500,000 young *Heveas* in seed-beds at Sarela and other stations."

Among other features of the report are statements that experiments have been made in a new method of tapping *Manihot*, and that up to the present no serious disease has been reported among the rubber trees of the Congo. It is said, moreover, to be the intention of the Government to discontinue a certain part of the cultivation of rubber vines; possibly relinquishing that branch in favor of the natives.

J. C. Willis, formerly director of agriculture at the Botanic Garden at Peradeniya, has been appointed director of the Botanic Garden at Rio de Janeiro, and expects to assume his duties there in the spring.

ENGLISH REPORTS ON CONGO PROGRESS.

The English Board of Trade Journal states that as a result of trials made, it is in contemplation to considerably extend the experimental cultivation of *Hevea Brasiliensis* in the equatorial regions. With this intention, considerable quantities of *Hevea* seed have been imported from Ceylon.

Funtumia Elastica, while developing satisfactorily in some regions of the Congo, does not appear capable of bearing repeated tappings over a long period as well as *Hevea*. It is stated that while the yield of latex at the first tapping is greater than from *Hevea*, at the end of a few days the secretion ceases. Regular experiments, while the results have been encouraging, have apparently demonstrated that the quantity of rubber from *Funtumia* is much less than from *Hevea*.

The prominence being given to *Hevea* cultivation is further recorded by Mr. H. G. Mackie, the British Consul at Boma. He states that a number of the larger and best equipped plantations are being devoted to the exclusive cultivation of *Hevea Brasiliensis*, while many smaller plantations have been abandoned, their upkeep causing a useless outlay. The Congo Government recognizing the merits of that species, is said to have planted 30,000 *Hevea* trees. At the same time the results of planting *Manihot Glaziovii* are said to be encouraging.

Experiments are likewise in progress with other varieties, including a latex-yielding *Euphorbia*, introduced from Central America. As soon as the tapping of the trees becomes practicable, it is proposed to establish the industry on scientific lines, such as those obtaining in Malaysia.

SOCONUSCO (MEXICO) RUBBER PLANTATIONS.

During the first business year of the above company a quantity of 20,290 pounds was produced, which realized the average equivalent of \$1.04 per pound for the best grades.

In view of this quantity falling considerably short of the original estimates, the calculations of the late Dr. Olsson-Seffer have been criticized by various shareholders. However, he is dead and his mistakes are buried with him. The board has been taking active steps to put the company's holdings in a profitable condition, and the hope has been expressed of that result being attained in the future.

Under these circumstances the directors have waived one-half of their fees for the current year.

In the report of the directors for the year ending June 30, 1911, it was mentioned that the late Dr. Olsson-Seffer had estimated the output of rubber for that year at 215,625 pounds, while Horace E. Levesley, who succeeded Dr. Olsson-Seffer, placed his estimate at 60,000 pounds, both estimates, it will be seen, being very much larger than the product actually secured.

The report states that the small output is largely due to the fact that about half the rubber trees that were first planted were placed under the shade of the aboriginal forest trees, it being the opinion at that time that *Castilloa* required shade. The work of cutting out these shade trees was begun some time ago, with the expectation that the yield will now be much greater. It is hoped that it will now amount to 60,000 pounds. The quality of the rubber has proved satisfactory and it has enjoyed a ready sale, at an average price of about 12 cents per pound below the price of fine Pará.

The Joliet Tropical Plantation Co. recently held its annual meeting, and listened to the reports of the various officers. The superintendent of the plantation (which is located at Oaxaca, Mexico), reported 400,000 trees on the plantation, and added that 200,000 of them would be ready for tapping this year. J. O. Barrett, George B. Carey and Robert Pilcher were re-elected directors, and F. M. Muhlig was chosen inspector to make a trip to the property in the early future and report to the stockholders.

DRINKING RUBBER.

A LONDON publication, in giving some news on the rubber situation, cites the following historical facts—often mentioned before but interesting to recall—regarding rubber, from which it will be noticed that South Americans of two centuries ago thought the latex of the rubber tree an effective antidote for hemorrhage: "The first European mention of rubber was as a toy. One of Columbus' lieutenants reported that the natives of Hayti played games with balls made from the gum of a tree. But the tree was not identified until 1615, when Torquemada mentions its sap as good among other things for removing tightness of the chest. It was also drunk to stop hemorrhage, and even then was being used by the Spaniards to waterproof their cloaks. But it took long for America to walk on rubbers—and the world to ride on them."

THE STATE OF PARA IN 1910.

MORE comprehensively and in greater detail than most other like summaries, the official report of the State of Pará for 1910 deals with many points of general interest as to the cultivation and distribution of rubber.

In the opening remarks the broad proposition is again enunciated that rubber deserves the support of the State government, in the same degree as has been the case in São Paulo with coffee, and with the anticipation of results equally successful and encouraging in Northern Brazil.

Dealing, as it does, with the history of 1910, the Manáos Congress of February 22 to 27 of that year receives appropriate notice, special mention being accorded to the suggestions tendered on that occasion by the editor of THE INDIA RUBBER WORLD, for the benefit of planters, as being a typical expression of the views of the rubber industry at large.

The preponderating importance of rubber to the State of Pará is shown by the fact that the article forms 95 per cent. of the total amount of exports of that State and contributes 98 per cent. of its export duties. The share of Pará in the world's production is illustrated by the following statistical return:

WORLD'S PRODUCTION OF RUBBER.

PARA OFFICIAL FIGURES.

	1909. Tons.	1910. Tons.
Federal Territory of Acre....	10,500	11,565
State of Amazonas	10,700	10,454
State of Pará	11,400	10,257
State of Matto Grosso.....	2,200	2,300
Island of Cajueiro (Piauhy). .	150	200
Republic of Peru	2,700	2,495
Republic of Bolivia	2,300	2,486
Republic of Venezuela	34	25
Republic of Columbia	6	18
(South America)	39,990	39,800
Central America	5,000	6,000
East Africa	5,460	4,200
West Africa	15,500	14,800
	20,960	19,000
Ceylon and Malasia plantations....	4,050	8,200
Total tons	70,000	Total tons 73,000

CONSUMPTION.

While, owing to a typographical error, the official figures are not quite clear, they would apparently indicate that the world's total production for 1910 was 73,000 tons, with a total consumption of 70,000 tons (or more than double the 33,952 tons recorded for 1895). American consumption had in that period only advanced from 17,044 tons to 28,636 tons, or about 68 per cent.

Another point of interest shown is that South America, which supplied in 1895 about 60 per cent. of the American consumption, now only furnishes about 50 per cent., the remaining 50 per cent. coming from other countries, as against 40 per cent. fifteen years ago.

DESTINATIONS OF SOUTH AMERICAN RUBBER EXPORTS.

In connection with the estimated South American production for 1910 of about 40,000 tons (as shown in tables of world's production), interest attaches to the following details of the ports to which shipments were made in that year.

	Tons.
Antwerp	88
Hamburg	814
Havre	3,988
New York	14,622
Liverpool	18,086
Tons	37,598

The larger proportion of exports to Europe as compared with America, already referred to, is thus further illustrated, as well as the continued preponderance of Liverpool as a rubber importing point.

PROPORTIONS OF VARIOUS QUALITIES OF RUBBER.

As shown in previous tables, the State of Pará 1910 production was 10,257 tons. Dividing this quantity amongst the various qualities, the following proportions are shown:

	Tons.	About
Fine	4,610,228	45%
Entrefine	403,371	4%
Sernamby	4,047,366	39%
Caucho	1,196,052	12%
Mangabeira	340	Nominal
Tons	10,257,357	100%

FUTURE SUPPLY OF RUBBER.

Regarding the question of future supply, the opinion is expressed that no large increase can be expected in the production of forest rubber, the consequent urgent necessity being pointed out of developing plantations. The view of Senhor Amando Mendes is quoted, to the effect that the most vital problem for the State is to meet the competition of Asiatic rubber by plantations established upon a large and systematic scale. Only by such a course, it is added, will the cost of production be reduced to such an extent as to facilitate competing with the Far East.

As to the future supply to be looked for from Asia, the estimates which have been put forward of 70,000 tons annually from that source within four years are referred to as being based upon a much lower cost of production than prevails in the State of Pará.

While only a few of the salient points in the able report of Dr. José Antonio Picanço Diniz have been quoted, they may be regarded as typical of his work and its treatment of the important question of South American production as a factor in the world's rubber supply.

IMPROVEMENTS AT PORT OF PARA.

THE expenditure of the Brazilian Government on the improvements now approaching completion at the port of Pará is said to represent nearly \$39,000,000. More than four years have been occupied in the work. In addition to providing facilities for docking, dredging, warehousing and other operations directly connected with the needs of the port, efforts have been made to improve the existing hygienic conditions; particularly by eliminating the mosquito, for which purpose large sums have been reserved by the State and municipal governments.

NEW TRADE PUBLICATIONS.

THE B. F. Goodrich Co., Akron, Ohio, is distributing a number of publications on various branches of its factory work. The most pretentious of them is a 20-page catalogue 5 ins. x 8 ins., finely printed on a superior quality of paper and descriptive of the mats, matting, and interlocking and inlaid tiling made by the company. The great superiority of rubber matting over other styles of floor covering, by reason of its cleanliness, its noiselessness, the perfect evenness with which it lies on the floor, and in the long run its inexpensiveness, has long been recognized. This catalogue not only describes the great variety of mats, but illustrates them with handsome half-tones, printed in colors.

Among the other publications just issued by this company are a four-page illustrated leaflet, descriptive of grain belts; a folder describing long-length pneumatic hose; and a folder arranged in an ingenious way and printed in three colors, describing the various articles and preparations which the company makes for repairing tires.

There is one other publication entitled "A Question of Profits," which addresses a sound argument to local hardware dealers in favor of carrying Goodrich valves.

All of these catalogues and leaflets are good examples of the printers' art.

Jenkins Bros., New York, have sent out a little pocket catalogue entitled "Facts About Jenkins Bros.' Valves." They describe their various valves with half-tone illustrations, covering many of the varieties which they sell. They call attention to the marked superiority of their composition disc valve over the old style of solid metal seat pattern. The Jenkins' disc being somewhat resilient, presents a slightly yielding surface to the valve seat, and adapts itself to any roughness or unevenness of the seat, and in this way insures perfect tightness. If the disc should become cut or worn, a new one can be substituted quickly and cheaply.

La Favorite Rubber Manufacturing Company, Paterson, New Jersey, has recently issued a 64-page catalogue describing and generously illustrating the various goods made by the company, covering their lines of packings, gaskets, tubing, valves, bellows, fold couplings for Pullman cars, hose, diaphragms, mats, etc. There are two features of the catalogue that are of special interest. One is "Armorplate" steel packing, one of the latest inventions of President Edward L. Perry. This packing is the result of a desire to produce a sheet packing that would resist the intense dry heat created by superheated steam, that would not deteriorate when kept in the engine room, that could be easily cut with a knife and could be put up in rolls of a continuous length. Another addition to the products of this company is the "Marvel Lip" packing, which was originally made to use on gauge glasses where the boiler pressure did the packing in place of the wrench. This same principle has been adopted in this new packing, which is intended for use in steam pistons, elevator plunger rods, hydraulic pump plungers and the plungers or jacks of hydraulic presses and lifts.

The Swinehart Tire and Rubber Company, Akron, has just issued a little brochure of twenty pages well printed on a high grade paper, and with a tasteful, stiff paper cover, describing and illustrating its solid and cushion tires and motor-buggy tires. It shows a number of the cross sections of the Swinehart solid two-wire tire, and also single-wire cushion tire. It illustrates tires made by the company for motor-buggies and light delivery wagons. The book is in no sense a catalogue, but is likely to stimulate a desire to see their catalogue.

The Firestone Tire & Rubber Co. are distributing folders on their non-skid tire, illustrating the lettered tread. It points out the advantages of this peculiar construction and the extra thickness of rubber on the tread.

Katzenbach & Bullock Co., Inc., Trenton, New Jersey, have issued a catalogue giving a list of the imported and domestic chemicals in which they deal. The first 8 pages are devoted to an alphabetical enumeration of these chemicals, together with brief descriptions. Some 12 pages are devoted to an alphabetical list of the trades which they are prepared to supply; the chemicals pertaining to each trade being put under their proper classifications. It is a small catalogue and can easily be carried in the pocket, but it gives a great deal of useful information.

The November number of "The Goodrich," a monthly publication issued by The B. F. Goodrich Co., Akron, Ohio, is especially interesting because of the account given therein of the illustrated lecture campaign which has been conducted by this company for some time past, and obviously with extraordinary success. These lectures are given by F. M. Tillisch. They are entitled "From Tree to Tire," and with the assistance of moving pictures they give the audience an interesting and graphic story of rubber from the time it issues as latex from the tree until it is made into a tire ready for service. A number of photographs are reproduced showing the enormous audiences that have convened to listen to these lectures. This is an admirable method of publicity, though conducted as it is by this company, it entails some expense and necessitates a carefully thought-out method of operation.

The Underwriters' Laboratories, Inc., Chicago, Illinois, have issued a little book of 32 pages, descriptive of the object and the work of that incorporation. The object of the Underwriters' Laboratories is to bring to the user the one best obtainable opinion on the merits or demerits of appliances in respect to the fire hazard. Such appliances include those designed to aid in extinguishing fires, such as automatic sprinklers, pumps, hand fire appliances, hose, hydrants, nozzles, valves, etc.

The work of the Underwriters' Laboratories is confined to investigations having a bearing upon the fire hazard, and is undertaken as one means of securing correct solutions of many of the problems presented by the enormous and disproportionate destruction by fire of property in the United States.

McCord Manufacturing Co., Detroit, Michigan, is circulating a little octavo booklet of 16 pages and cover, in various tints of brown, entitled "Heart Trouble in Your Power Plant." The writer likens the boiler, piping and engine of a manufacturing plant to the heart in the human system and maintains that a loss of energy in either of these two institutions is fatal to the general welfare; after which he goes on to discuss leaky joints and the desirability of using the McKim gasket, manufactured by this company, to remedy the difficulty. The same company is also distributing an illustrated catalog entitled "The McKim Gasket," giving detailed information covering the variety of gaskets the concern manufactures and the sizes and prices of each.

A SET OF HUMOROUS HANGERS.

Alexander Macpherson, a dealer in crude rubber, of No. 96 Spadina avenue, Toronto, Canada, has issued a set of six cards, in size 5¼ by 8¼ inches, furnished with cord for hanging, on which there are sundry amusing texts. One, for instance, reads as follows:

"MARKET REPORT.

Any old place.

Any old time.

Mr. Manufacturer,

Anywhere.

Dear Sir:—

Market firm and advancing, with a strong downward tendency. Advice you to buy freely at once, or refrain from buying as you may see fit.

Yours faithfully,

OLD-KNOW-IT-ALL."

The others are in similar vein, although four of them in addition to humorous text, have comic illustrations. They will all interest dealers in crude rubber.

The Editor's Book Table.

LE CAOUTCHOUC AMAZONIEN ET SON CONCURRENT ASIATIQUE.
Paul Le Cointe (reprinted from "Le Caoutchouc & La Gutta Percha,"
Paris.) [8vo, pp. 56.]

Dealing with the past history of the competition of Asiatic plantation rubber with the Amazonian product, M. Le Cointe states as his general opinion, that notwithstanding the importance of the change in the economic situation of Amazonia, it has been greatly exaggerated. For his part, he absolutely does not believe in the positive ruin of that vast country, through the absolute triumph of Malaysia as a source of rubber. He points out, however, the fact that it is only within a comparatively recent period that Malaysian rubber has assumed a position of importance, but that production in that quarter may be expected to rapidly increase.

Of equally practical interest is the other side of the question—at what figure is consumption to be estimated. In his words:

"Since 1900 consumption has increased about 6 per cent per annum and at present equals the production. . . . It would thus, by 1920, have only reached 280,000,000 pounds, but it would suffice for the rate of increase to be 8 per cent. for the consumption to reach 340,000,000 pounds, and to largely exceed the production. As rubber is being more and more generally used, and new applications of this product are being every moment found, there is no reason to consider this annual rate of increase as being exaggerated."

On the other hand, attention is drawn to the fact that there is a limit to the multiplication of *Hevea* plantations in Asia, which limit will soon be reached. This is due to the fact that there is difficulty in finding in the tropical regions of the Far East, new lands suited for rubber cultivation. Hence, it is added, even with a normal development of existing plantations, there is really no imminent danger of over-production.

Looking at the matter from the Brazilian point of view, it is urged that Asiatic rubber can only, through its competition with Pará, bring down by degrees the price of the latter. It is not the apprehension of being unable to find consumers for his rubber that ought to trouble the Amazonian planter, but the undeniable fact that he cannot always hope to sell at a remunerative price, unless he succeeds in greatly diminishing his present cost of production. The above-named prospective fall in the price of Pará rubber will, it is added, be very slow, as the manufacturing industry will always give *Hevea* the preference, while lower rates for the latter would facilitate its being used in place of inferior grades, and for purposes from which it is now excluded by its high price. An automatic restoration of equilibrium would be effected, rendering but little probable a rapid depreciation, ruinous to the producer.

In discussing the subject of synthetic rubber, M. Le Cointe expresses the opinion that under existing conditions the synthesis of rubber cannot be realized in the proper sense of the word; the substances produced rather being new types supplementing those furnished by the vegetable kingdom. He adds it would be very difficult to obtain artificially a body presenting the complete *ensemble* of the qualities of Pará, in the same degree and at a commercial price. In confirmation of this statement he quotes the fact that the product recently obtained by M. Richard (the French expert) while it could even be vulcanized, was only made in small quantities at a very high cost.

Concluding his remarks upon the question of synthetic rubber, M. Le Cointe says: "This time, again (as in the case of Asiatic rubber) the Brazilian rubber planter will only suffer to the extent of a slight emotion."

Many other points of interest (both actual and prospective), regarding Asiatic and Brazilian rubber, are dealt with in this interesting article.

THE RUBBER-PLANTER'S NOTE BOOK. By FRANK BRAHAM.
F.R.G.S. London: Crosby Lockwood & Son, 1911. [Cloth, pp. 108.]

In this handy but comprehensive little work, Mr. Braham has grouped a number of facts and recommendations of interest to rubber planters. Its sections include: nurseries, planting, tapping, etc.; machinery, literature of rubber, etc.; preservation of health in tropical climates; rubber-growing countries; as well as the various troubles to which planters are subject.

Special interest attaches to Mr. Braham's remarks, to the effect that there is every probability of a large commercial demand arising for Pará rubber seed, as it is known to contain a clear light yellow oil, akin in its properties to linseed and cottonseed oils, its residue, moreover, including elements useful for cattle food. It is added that in view of the prospect that the supply of seed for planting will soon exceed the demand, it would be wise, when other machinery is being erected, to keep in view the possible inclusion at a later date of crushing machinery. The avowed purpose of being used in the field is facilitated by its size ($6\frac{1}{2} \times 4\frac{1}{2}$) allowing this book to be carried in the pocket.

A CULTURA DE HEVEA NO ORIENTE E. S. A. Manufactura nos Estados Unidos. By J. A. Mendes. Para, 1911. [Paper, 8vo, pp. 46.]

In this brief but comprehensive booklet, Señor J. A. Mendes has perpetuated two addresses delivered on March 25, 1911, at the "Theatro da Paz" at Pará. One was by himself and the other by Dr. Jacques Huber, director of the local "Museu Goeldi." In the former, after a general historical review of the history of Pará rubber cultivation, the subject of *Hevea* cultivation in the East was taken up, with special reference to the efforts of Mr. H. A. Wickham in that direction. Present conditions were then dealt with, in connection with some 70 views illustrating the cultivation of *Hevea* and other points relating to rubber production in the East, some of which are reproduced in this booklet.

An interesting feature of Señor Mendes' address was a description of the manufacture of rubber goods in the United States, in the course of which he described his visits to many of the leading factories in that branch of industry, his remarks being illustrated by views (as in the case of the earlier part of the address), showing various processes in operation. The series of views was appropriately closed by a portrait of Charles Goodyear, without whose invention of vulcanization (as Señor Mendes remarked) rubber could never have been used for the various purposes for which it is now applied.

In his address, supplementing that of Señor Mendes, Dr. Jacques Huber said:

"I take pleasure in here mentioning the name of Mr. H. C. Pearson, the well-known editor of THE INDIA RUBBER WORLD, who with the greatest courtesy offered the 'Museu Goeldi,' on the occasion of his visit to the Amazon last year, the greater part of the slides which have just been reproduced in your presence. With this valuable contribution Mr. Pearson gave the first instigation towards the realization of the objects of the Manaus Conference."

The B. F. Goodrich Co., Akron, Ohio, have issued a finely printed pamphlet of 32 pages descriptive of their wireless motor truck tires describing and illustrating the peculiar sectional shape of the tread of the tire, which they contend gives the tire greater shock-absorbing qualities than any other truck tire, and also describing fully the method of fastening the tire to the rim of the wheel. The booklet contains a great number of illustrations not only of the tire, but of various heavy trucks showing the tire in use. It will prove an interesting publication to all truck owners.

The Obituary Record.

ALBERT FISCHER.

ALBERT FISCHER, president of the St. Paul Rubber Co., St. Paul, Minnesota, and for many years widely and favorably known in the rubber footwear jobbing trade, died of apoplexy, in St. Paul, on December 12. He had been in poor health for a year, but was about the city as usual on the afternoon preceding his death.



ALBERT FISCHER.

He was born in St. Paul 50 years ago, attended the public schools until he was 18 years of age, when he entered the employ of Ranney & Hodgman, dealers in rubber goods. He became connected with the firm in 1889, and in 1895, when the company was reorganized and became the St. Paul Rubber Co., he was elected its president. He was prominent in public and business affairs, being a member of the Minnesota, Commercial and Town and Country clubs, the Junior Pioneers and Elks.

The funeral was held at the Cathedral December 14. Eight employes of the company acted as pallbearers. They were A. C. Kreiger, H. N. Hodgman, L. G. Schackford, D. McGrath, A. W. Smith, James Phillips, W. D. Fritz and F. T. Pfeiffer.

JOHN A. C. HAMILL.

John A. C. Hamill, well known as an expert in the rubber business, and at one time proprietor of a small rubber factory on Bristol Neck, in the town of Bristol, where the National India Rubber Co.'s plant is located, died at the home of his sisters, Lincoln avenue, that town, December 6. He was born in New York fifty years ago.

Mr. Hamill went to Bristol with his parents when young, and was employed after leaving school at the factory of the National India Rubber Company. Clothing of rubber fabric was his specialty. About twenty years ago he accepted a position as superintendent of a rubber factory at Liverpool, England. After several years abroad he returned to Bristol, but later was superintendent of the Chicago Rubber Company's plant at Racine, Wisconsin.

Besides a widow, he is survived by two brothers, Michael Hamill, a government employe at Panama, and Dr. William H. T. Hamill, a physician at Phillipsdale, Rhode Island, and four sisters, Mrs. John J. Hughes, of Stamford, Connecticut; the Misses Katherine, Molly and Margaret Hamill, of Bristol.

The funeral was held December 9 at St. Mary's Church, Bristol, following services at his home.

Mr. Hamill's life was not without its romantic side, for during a brief period he was one of the most prominent baseball players in the country. Lyman Bean, of Fall River, discovered him playing amateur ball at and around Bristol, and in 1884 secured for him a position as pitcher for the Washington Nationals, of the Union Association. He was a star widely talked about during that season, but dropped out of sight at the end of the summer when his team disbanded. During one famous game at New York he was carried off the field on the shoulders of his fellow-players, and was later presented a testimonial which his widow still possesses.

DR. EUGEN DE HAEN.

CLOSELY following upon the celebration of the firm's golden jubilee comes the sad intelligence of the death, on November 16, of Dr. Eugen De Haen, founder of the well-known German chemical factory of E. de Haen, Seelze near Hannover. He had attained the age of 76, and by his careful and energetic management had achieved for his firm an international reputation, particularly in the rubber industry.

PAVING STONES AND RUBBER.

While dealers in the crude article have of late received many complaints of the substitution of stones for rubber, with the object of concealing false weights, it has been hitherto assumed that the fraud had been committed either on board the vessel which carried the merchandise, or before the shipment had been made. It was reserved for a New York dealer to lately run a specific complaint to earth, with the result that the responsibility was placed upon the trucking firm which had carried the rubber from the steamship dock in South Brooklyn to the freight yard of the New York Central. Upon being unpacked, two paving stones, weighing 70 pounds, were discovered.

From the stones being undoubtedly Belgian paving blocks, which are not used in Pará, and from their similarity to those common at New York, suspicion was at once directed to the handling of the rubber here. Upon investigation it was found that the truck driver had been discharged, by reason of his not having been able to account for a delay of two hours on his trip. It was evidently during that time that the substitution had been made. The South American shipper was therefore exculpated.

PHENOMENAL PROSPERITY OF TIRE COMPANIES.

The season just closed has been by far the most prosperous in the history of the tire industry. One company alone, and this an independent company, is said to be producing at the rate of 750,000 tires a year. It is believed that the tire output for 1912 will amount to \$140,000,000. This prosperity is reflected in the dividend returns of the different companies. The Boston News Bureau has the following to say on this phase of the matter:

"A glance at the financial 'log' of the tire companies reveals almost uniform prosperity. Both the Goodyear and Diamond companies have in the recent past distributed stock dividends of 100 per cent. each to stockholders, not to mention extra cash disbursements. The B. F. Goodrich Co. last year paid a 20 per cent. stock dividend, of \$2,000,000 preferred stock, and it is believed that the company's shareholders are in line for another and similar division of profits before long. And it is quite generally accepted that the phenomenal earnings of its tire organization had a very close connection with the recent inauguration of common dividends by the United States Rubber Co."

News of the American Rubber Trade.

BOSTON BELTING CO.'S ANNUAL.

At the recent annual meeting of the Boston Belting Co. the directors were re-elected: Thomas A. Forsyth, J. H. D. Smith, Lewis M. Crane, Charles H. Moseley, Francis H. Stevens, William H. Furber and George A. Miner. Thomas A. Forsyth was re-elected president; J. H. D. Smith, treasurer and clerk; and Thomas Lang, Jr., and Charles J. Upham, auditors. The balance sheet as of September 30, 1911—with comparative figures for the preceding year—is appended:

ASSETS.		
	1910.	1911.
Real estate—land and buildings..	\$324,711.85	\$324,711.85
Machinery	348,089.94	268,578.25
Tools, furniture and fixtures.....		
Cash	79,618.73	39,806.49
Bonds receivable	82,340.00	874,731.61
Notes receivable	841.72	
Investment account	613,000.00	
Account receivable	120,089.44	
Merchandise	983,002.08	878,673.48
Trade marks	7,917.15	100.00
Sundries.....		
Total	\$2,559,609.91	\$2,485,664.78
LIABILITIES.		
Capital	\$1,000,000.00	\$1,000,000.00
Reserve fund	800,000.00	800,000.00
Profit and loss	337,609.91	222,164.78
Notes payable	422,000.00	454,000.00
Unsettled bills .....	.....	9,500.00
Total	\$2,559,609.91	\$2,485,664.78

THE RUBBER CLUB DINNER.

The midwinter dinner of the Rubber Club of America will be held at the Waldorf-Astoria, New York, on the evening of January 12. The president of the club, F. C. Hood, will preside at the dinner and a large attendance is expected. The signal success of the first New York dinner, held a year ago, will naturally have the effect of bringing out a full number for the second dinner. The speakers have not yet been announced, but several speakers of national reputation have been invited and are expected to be present.

THE DAVOL SELLING MEN GET TOGETHER.

On December 18, 19 and 20 there was held at the factory office, Providence, Rhode Island, the annual gathering of the Davol Rubber Co.'s sales force.

Those attending, in addition to Charles J. Davol, the president and general manager, were P. Raymond Wesley, sales manager; Ed. J. George, of Pewaukee, Wisconsin, western representative; O. Neidenstein, of Brooklyn, New York, representative in the metropolitan district; Raymond J. Fries, the eastern representative, who resides in New York, and J. A. Burgess, of Charleston, South Carolina, who covers the South Atlantic States. There were also two new members, one being Lewis G. Abbott, who recently resigned as sales manager of the Davidson Rubber Co., of Boston, with which he had been associated during a continuous period of twenty-six years. Mr. Abbott will be located in Boston and will cover the New England States. The other new member was E. G. Hartwell, of Detroit, Michigan, who will cover the Southern Central States formerly visited by H. H. McGee during his connection with the Davol company.

The only absentee was George A. Sheehan, of San Francisco, who looks after the Davol interests on the Pacific Coast.

Shortly after January 1 offices will be opened for the display of Davol products in the cities of New York and Boston. These two new offices, with those now maintained in Chicago, San Francisco and Charleston, South Carolina, will enable each salesman to show to buyers in his territory a complete line of the druggist rubber sundries made at the Providence factory. Mr. Abbott will be at the Boston office, in the Old South building, and Mr. Fries will be at the New York office, in the Barclay building, corner Broadway and Duane street.

After two days devoted solely to matters of business, a day was pleasantly spent in social diversions, and in the evening the annual dinner occurred at the well-known Providence home of Joe Smith, famous all over that section of country for his broiled chicken and Johnny cakes. Mr. Neidenstein, at the close of the dinner, was moved to offer the following toast, appropriate to the occasion:

"Here's to you, old friend, may you live a thousand years,
Just to sort of cheer things in this vale of human tears;
And may I live a thousand, too—a thousand—less a day,
'Cause I wouldn't care to be on earth and hear you'd passed away."

At parting "Joe" presented the boys with a little souvenir as usual, and received the unanimous promise to visit him again next year after the general meeting ends.

RUBBER GOODS MANUFACTURING CO. DIVIDENDS.

A dividend of 3 per cent. was declared on the common stock of the Rubber Goods Manufacturing Co. December 6. This compares with 2 per cent. three months ago, 1 per cent. six months ago and 2 per cent. last March, making 8 per cent. for the year. The usual quarterly dividend of $1\frac{3}{4}$ per cent. was also declared on the preferred. In 1908 the company paid 4 per cent., and in 1909 and 1910 only 1 per cent. on its common stock. This year's dividend is consequently considerably the largest in the history of the company. Nearly all of this common stock is held by the United States Rubber Co.

RUBBER SECTION—AMERICAN CHEMICAL SOCIETY.

Mr. D. A. Cutler, of the Rubber Goods Manufacturing Co. (New York), has been appointed chairman of the rubber section of the American Chemical Society. This section held its annual meeting in Washington from December 27 to December 30. Many interesting papers were submitted, among them one on "Testing Methods of Rubber Contents in Raw and Vulcanized Rubber," by Dr. W. A. Duca; "Commercial Compounds Used in Rubber," by S. P. Thatcher; and papers on the "Deresination of Crude Rubber," by Francis R. Peabody and Victor Henzlick.

A PROFITABLE YEAR FOR THE GOODYEAR TIRE CO.

A recent issue of the New York "Journal of Commerce" contains the following interesting paragraph regarding one of the large Akron companies:

"The Goodyear Tire & Rubber Co. has declared an annual dividend of 12 per cent. on its common stock, payable January 1 to holders of record on December 22. This is an increase of 5 per cent. over previous disbursements, which have been at the rate of 7 per cent. per annum. It is stated that the gross sales of the company this year were approximately \$13,000,000, and next year's sales are expected to reach \$20,000,000. It is claimed that the company earned slightly in excess of 50 per cent. on its \$2,284,000 common stock during the year."

NEW INCORPORATIONS.

BATAVIA COMPANY of Pennsylvania, November 25, 1911, under the laws of New York; authorized capital, \$30,000. Incorporators: Harry W. Newburger, 2 Rector street, New York; Maxwell Lustig, 2046 East 24th street, Sheepshead Bay, New York; D. Weiss, 52 Ravine avenue, Yonkers, New York. Location of principal office, Manhattan. To manufacture tires.

International Automobile League Tire & Rubber Co., August 1, 1910, under the laws of New York; authorized capital, \$1,000,000. Incorporators: Alfred C. Bidwell, 234 Division street; Wm. Preiss, 160 Franklin street, and Chas. H. Bowe, 58 W. Genesee street—all of Buffalo, New York. Location of principal office, Buffalo, New York.

London Rubber Coat Co., December 19, 1911, under the laws of New York; authorized capital, \$2,000. Incorporators: Morris Miller, 1138 45th street, Brooklyn, New York; Jacob Miller and Isaac Karduner, both of 105 W. 137th street, New York. To manufacture auto coats, etc. Location of principal office, Manhattan.

The Mercantile Rubber Co., December 4, 1911, under the laws of New York; authorized capital, \$3,500. Incorporators: Sidney Klausner, 741 East 5th street, New York; Joseph Cosin, 271 Union street, and Louis Cosinsky, 970 Court avenue, both of Brooklyn, New York. Location of principal office, Manhattan.

Miles Motor Tire Spring Co., November 9, 1911, under the laws of Delaware; authorized capital, \$200,000. Incorporators: M. R. Myers, Huntingdon; Frederick B. Miles, Wilkinsburg, and Charles W. Dressler, Braddock, all of Pennsylvania.

B. F. Moffat Punctureless Tire Co., December 1, 1911, under the laws of Maine; authorized capital, \$2,500,000. Incorporators: E. M. Leavitt and L. A. Burleigh, both of Augusta, Me. Location of principal office, Augusta, Maine. To manufacture resilient tires for automobiles, motor vehicles, etc.

National Rim Co., December 19, 1911, under the laws of New York; authorized capital, \$150,000. Incorporators: Luke G. Fleming, Jost J. Hafner, both of 43 Wilde street, and Erdman N. Brandt, Washington street, all of Tarrytown, New York. To manufacture tires, rims, etc. Location of principal office, Manhattan.

National Rubber Co., December 5, 1911, under the laws of New York; authorized capital, \$5,000. Incorporators: Max Durst, Henry Durst and Sarah Durst, all of 1525 Fulton avenue, New York. Location of principal office 88 Reade street, New York. To manufacture rubber clothing, drug and plumbers' sundries.

National Rubber Co., December 11, 1911, under the laws of New York; authorized capital, \$5,000. Incorporators: Jacob Bernstein, 58 Essex street; Philip Friedman, 334 Grand street, and Abraham Samilson, 236 Madison street, all of New York. Location of principal office, Brooklyn, New York.

John E. Sias Co., November 29, 1911, under the laws of New York; authorized capital, \$100,000. Incorporators: John E. Sias, A. R. Sias, and K. G. Sias, all of 2271 Church avenue, Brooklyn, New York. Location of principal office, Brooklyn, New York. To manufacture rubber, rubber cement, etc.

Simpson Fibre Tire Co., November 17, 1911, under the laws of Michigan; authorized capital, \$100,000. Incorporators: Selden L. Simpson, James D. May and Harry J. Dingeman, all of Detroit, Michigan. To manufacture and sell at wholesale and retail fibre tires for vehicle wheels and the manufacture and sale of vehicle wheels.

The Troy Steam Vulcanizing Works, November 25, 1911, under the laws of New York; authorized capital, \$5,000. Incorporators: Harry E. Titus, Josephine Titus and Geo. Taylor, all of Troy, New York. Location of principal office, 414 River street, Troy, New York. The company has been incorporated for the purpose of tire vulcanizing.

PERSONAL MENTION.

Richard C. Hall, of Chicago, has been appointed Chicago selling agent of the United States Rubber Co., in place of E. G. Stearns, who recently resigned that position, to take the selling management of the products of the Banner Rubber Co. Mr. Hall, while originally from Boston, has been in Chicago the greater part of his life, and has been for some years past president of the Duck Brand Co., of that city.

The directors of the Rubber Club of America met at the Lotos Club, New York, on December 6, to make arrangements for the holding of the annual midwinter dinner. F. C. Hood, president of the Hood Rubber Co., presided at the meeting, and among those present were H. E. Sawyer, E. S. Williams, E. H. Clapp, H. P. Fuller, F. H. Appleton, ex-Gov. A. O. Bourn, G. F. Mayo, F. D. Balderston, R. L. Rice, F. B. Dunbar and H. C. Pearson.

W. J. Mulvihill has resigned as superintendent of the Newark Rubber Manufacturing Co., Newark, New Jersey.

A. C. Leonard, who recently resigned as Pacific coast representative of the Goodyear Tire and Rubber Co., Akron, Ohio, is planning to enter the local tire field in San Francisco on his own account.

COMMODORE BENEDICT AND HIS AMAZON WIRELESS

COMMODORE E. C. BENEDICT, a director of the United States Rubber Co., and interested in the development of the Amazon country, especially in the promotion of wireless telegraphy between Pará and Manáos, sailed from New York on December 19 for a four months' cruise in southern waters. The party consisted of Colgate Hoyt, L. L. Benedict, Commodore Frank S. Hastings, Edward Beers, A. J. Hutter of Pará, and the commodore's daughter, Mrs. Clifford Harmon and some of her friends.

The itinerary of the trip as arranged before sailing, subject to later changes, provides for a straight journey to St. Thomas, to Barbados, to Pará, up the Amazon River to Manáos, and then back to Pará. From there the party expects to go to Rio de Janeiro, to Buenos Ayres, and thence by rail to Valparaiso. Here a considerable stop may be made, and then the party will return to Buenos Ayres and to Rio de Janeiro. After this it is possible that there may be a trip to the Madeira Islands, and also the Island of Sicily.

The "Alvina," chartered by the commodore for the trip, is 214 feet over all, 26 feet 10 inches beam, has twin screws, and was fitted specially for this trip in a particularly fine fashion with ample accommodations for the party which accompanies the commodore.

Some time ago the commodore obtained a license from the Brazilian Government to operate a wireless from Pará to Manáos, a distance of about one thousand miles. Recently word came that the Brazilians had revoked his license. The commodore went to Washington and had a talk with Secretary Knox, who promised to look into the matter and see that his rights were protected. The commodore was asked why his license had been revoked. He answered, according to an interview in the New York Times:

"I don't know anything about it. How should I know why they have deprived me of it. The only reason that I can think of is that they want all of those privileges themselves." The same paper goes on to say:

"The commodore, after he had obtained his license, built the necessary stations. The frequency of his trips to the Amazon made the investment look good enough, for it could be used by all vessels fitted with the wireless apparatus. The sudden revocation of the license looked like a great injustice and every effort will be made to protect the commodore and permit him to use this equipment."

THE NEW JERSEY EMPLOYERS' LIABILITY LAW.

The Employers' Liability Law, recently passed in New Jersey, which is of such a sweeping character that the employer is made liable for injuries to the employe, under a great many conditions under which hitherto no such liability has legally existed, has recently been given a test in the court and its constitutionality sustained.

Relative to a verdict granting damages of \$7.27 a week for 300 weeks to the widow and children of the first man killed since the law went into operation, Judge William P. Martin, in the Court of Common Pleas at Newark, New Jersey, on December 4, gave an opinion in which he sustained the constitutionality of the act on every point attacked. The verdict was in favor of Mrs. Lizzie A. Sexton, widow of Floyd Sexton, who was killed while in the employ of the Newark District Telephone Co., July 4 last, four hours after the new law went into effect.

TRADE NEWS NOTES.

WILLIAM R. THROPP & SONS CO., Trenton, New Jersey, manufacturers of rubber machinery, who recently equipped two rubber mills in Mexico for preparing crude rubber for export, are planning the erection of a large addition to their present works.

The Goodyear Tire and Rubber Co., Akron, Ohio, is constructing two new buildings, one 300 x 60 feet, five stories high, being an addition to the factory, and the other 120 x 50 feet, six stories high, being an addition to the general office. It is installing in its power plant one 3,000 h. p. cross compound engine and one 1,500 kw. turbine, together with several smaller pieces of machinery. The automobile tire capacity of the plant is being increased from 2,200 to 3,500 casings per day.

The Fear-Naught Tire and Rubber Co., Paterson, New Jersey, has purchased the Cardinal mill in that city, which was operated for many years by the Cardinal Silk Co. Some changes will be made before the rubber machinery is installed.

The B. F. Goodrich Co. will erect a three-story building and basement at 1925 and 1927 Michigan avenue, Chicago, Illinois.

The Diamond Rubber Co. is erecting a two-story brick building on the corner of Eleventh and Olive streets, Los Angeles, California.

The Firestone side-wire cushion tire for electric cars claims special merit for its easy riding qualities, first by giving a double or dual tread, and second, by adding internal cavities at frequent intervals in the base directly under the tread where the full cushion effect may be secured.

On January 1, 1912, the Firestone Tire and Rubber Co. opened a new branch office at 1521 Commerce street, Dallas, Texas. T. B. Talbot, who formerly traveled through Ohio for the Firestone, has charge of the Dallas office. This company will open a new branch at Indianapolis, Indiana; and new agencies have been opened at Springfield, Ohio, Tacoma, Washington, Des Moines, Iowa, and Dayton, Ohio, making 45 agencies in all.

The firm of A. T. Morse & Co., for many years well known in the rubber importing trade, was dissolved on December 31 last, and has been replaced by the new firm of Meyer & Brown, consisting of Otto Meyer, who was a partner in A. T. Morse & Co. for five years, and A. H. Brown, who was also connected with the same firm for four years. A. T. Morse will be interested in the new firm as a special partner. Business will be conducted in the offices occupied by A. T. Morse & Co., at 35 South William street, New York City, N. Y.

The Apsley Rubber Co., Hudson, Massachusetts, distributed to its friends and employes a Christmas card with Christmas greetings on one side and on the other an invitation to be present at the town hall in Hudson, on December 29, at a triple entertainment, the early part of the evening being devoted to "An Illustrated Trip Abroad," by Anthony W. Straus, which was fol-

lowed by a collation at 9 p. m., which in turn was followed by a grand ball. It is not necessary to add that the invitation was accepted by all who were near enough to get there.

The Quaker City Rubber Co., Philadelphia, Pennsylvania, has sent out to its customers a pretty Christmas card printed on an imitation cross section of wood, which gives a very artistic effect.

The Converse Rubber Shoe Co., Malden, Massachusetts, in order to take care of its increasing business, has found it desirable to increase its capital; and accordingly the directors, at a meeting held December 1, voted to increase the company's capital from \$400,000 to \$600,000 by issuing 1,750 shares of 7 per cent. preferred stock and 250 shares of general capital stock, the latter being subscribed for by the officers of the company.

A first and final dividend of 1 per cent. has been declared in the settlement of the affairs of the M. Lindsay Rubber Manufacturing Co., which went into bankruptcy in Washington, District of Columbia, several years ago.

The B. & R. Rubber Company, of North Brookfield, Massachusetts, has declared a dividend of 2 per cent. on common stock and 1¾ per cent. on preferred stock, both payable January 1, 1912, to stock of record December 26.

The Canadian Consolidated Rubber Company, Ltd., has declared the regular quarterly dividends of 1¾ per cent. on its preferred stock and of 1 per cent. on its common stock, both payable January 2 to holders of record December 21.

The Walpole Rubber Company, Walpole, Massachusetts, has declared the usual quarterly dividend of 1¾ per cent. on preferred and 1 per cent. on common stock, payable January 15, to stock of record January 1.

CALENDARS RECEIVED.

J. H. Stedman & Co., Inc., dealers in scrap rubber, Boston, Massachusetts, have issued a handsome wall calendar, 14 by 22 inches, showing a pretty landscape, printed in a delicate shade of green, while below is a calendar pad, large size, with a page for each month. It is a convenient office calendar, as the figures are legible at a considerable distance.

George F. Lufbery, Jr., manufacturer of chemicals for the rubber trade, Elizabeth, New Jersey, has issued a wall calendar for office use in the form of a long hanger, about 13 inches wide and 32 inches long, having twelve leaves, each leaf giving three full months. As the type is large and plain, this calendar is serviceable for general use in any large office.

The United States Rubber Co. has distributed to its customers a handsome wall calendar of practically the same design as the calendar issued last year, which was very favorably commented on. The calendar is 12 by 18 inches, printed on heavy white cardboard, which in turn is mounted on a heavy green board. The design, which is decorative rather than pictorial and shows an arrangement of rubber leaves, is printed in gold and white and several shades of green. In constructing this calendar the main consideration was obviously to get quality rather than to escape expense.

The New Jersey Rubber Co., Lambertville, New Jersey, issues a useful desk calendar, devoting a leaf to each day in the year. Each leaf on its face not only gives the particular date in large type, legible across the office, but shows in addition three full months. The back of the page can be devoted to memoranda.

The American Rubber Manufacturing Co., San Francisco, California, has issued a very pretty calendar, intended for the home rather than for the office, which reproduces a painting by the New York artist, Philip Boileau, and printed in the four color process, entitled, "After the Opera." It shows a handsome young woman, evidently from her expression reminiscing on the evening she has just passed. From her general appearance and accoutrement it is obvious that she occupied the center box in the first tier.

TRADE NEWS NOTES.

It is reported that the retail shoe dealers in some of our smaller cities have got together and adopted a uniform selling price for rubber footwear, giving them an average profit of 40 per cent. If the people who are constantly discussing the increased cost of living run upon this item, they will have one more reason to add to those hitherto cited by way of explanation. Forty per cent. seems like rather a generous profit for the retailer. The manufacturer and wholesaler would very much like to join the 40 per cent. class.

The Monatiquot Rubber Works Co., South Braintree, Massachusetts, on Thanksgiving Day gave a turkey to each of the married men, cigars to the unmarried men, and candy to the girls. Now the question arises—which of the three was best pleased?

The financial writers in some of the daily papers, speaking of the future of the United States Rubber Co., remark that in four years' time the company expects to lay down crude rubber in New York for something like 20 cents per pound. When fine quality crude rubber is laid down in New York for 20 cents a pound, what will become of the valley of the Amazon, not a pound of whose rubber under anything like present conditions can be laid down in New York for twice 20 cents per pound?

The Michelin Tire Co., Milltown, New Jersey, is reported to have leased, for five years, the property at 1314 Huron road, Cleveland, Ohio.

The factory of the National India Rubber Co., Bristol, Rhode Island, still continues to run on very full time, with a present promise of a continuance of this condition for a good part of the winter.

The Fisk Rubber Co., Chicopee Falls, Massachusetts, has secured a permit for the erection of a two-story brick building in Pittsburgh, Pennsylvania.

The National Rubber Co., a Missouri corporation recently organized, contemplates the building of a factory at St. Louis, Missouri, for the manufacture of rubber paints and other rubber products, to be used in waterproofing aeroplanes, tents and in preserving tires.

The Standard Rubber and Cable Co., mentioned in the December number of THE INDIA RUBBER WORLD as manufacturing a preparation known as "Vulco," used in the repair of tires, is located at Bridgeport, Connecticut.

The fire that occurred in the plant of the John A. Roebling's Sons Co., Trenton, New Jersey, on December 2, while it did considerable damage was confined entirely to the one shop in which flat wire is made, the other shops not being damaged. Arrangements were immediately made by which the facilities of the other parts of the plant could be employed in doing the work which had been done in the shop that was burned, so that there was very little interference with the filling of the company's orders.

William H. Scheel, No. 159 Maiden Lane, New York, importer of chemicals used in rubber compounding, announces that he has added to his line a fine grade of calcined magnesia, which can be delivered in packages to suit the convenience of the customer. This new line has been added for the reason that Mr. Scheel has received many calls for a high grade imported product, which notwithstanding the heavy duty levied on it can be sold at a reasonable price. He also carries carbonate magnesia in stock.

The Hood Rubber Co., Boston, Massachusetts, following its custom for some years past, has issued to its customers a set of "Memory Joggers," consisting of 12 little diaries, one for each month with a page for each day and a leather cover in which these little monthly booklets can be inserted. A pencil completes the outfit. The little book in the cover is only 3" x 5", so that it can be conveniently carried in the waistcoat pocket. The series is put up in a cardboard box where the diaries can be filed after they have been used.

PERSONAL MENTION.

The dailies recently had quite a little to say about young Lionel de Jersey Harvard, a member of the family from which came John Harvard, who founded Harvard University 275 years ago. He was recently matriculated in the institution founded by his distinguished relative, being the first student by that name ever connected with the college. His father, J. M. Harvard, is a prominent member of the rubber trade of London, having been connected for over 30 years with the Leyland and Birmingham Rubber Co., Limited, as manager of their London branch.

J. W. Buckley, of the J. W. Buckley Rubber Co., New York, has recently returned from a trip to Jamaica, British West Indies.

Senator Wetmore, of Rhode Island, whose last election to his seat was the occasion of a prolonged and memorable contest between him, Colonel Samuel P. Colt, president of the United States Rubber Co., and Robert H. I. Goddard, announces that he will not be a candidate for re-election.

H. J. Ackerman and Louis Brunt, who have been connected with the factory of the Firestone Tire and Rubber Co., Akron, Ohio, have recently become connected with the St. Louis branch of that company, Mr. Ackerman becoming the St. Louis salesman.

C. J. Butler, vice-president of the United States Tire Co., who has recently made quite an extended trip through Europe, has this to say on comparative factory equipment:

"European rubber manufacturers do things in a very thorough manner, but I fail to see wherein their methods excel ours in any important particular. In the matter of equipment our factories rank with theirs in every way, and in many instances we employ machinery to great advantage over their hand labor. And our output is many times greater than they can lay claim to."

Speaking of cars of the runabout type he says:

"There is only a limited market in European countries for small, medium priced cars. This is due to the fact that they have no prosperous middle-class as we have in this country. Practically all of the cars in use are of the large touring type, although several manufacturers have begun making and marketing small cars. I doubt, however, whether there ever will be a big demand for them."

C. M. Schelp and Conrad Budke, Jr., have recently become associated in the organization of the Schelp-Budke Tire and Rubber Co., in St. Louis. The company will handle the Swinehart tires for trucks, cars and carriages.

H. G. Fisk, secretary of the Fisk Rubber Co., Chicopee Falls, Massachusetts, has become a member of the Association of National Advertising Managers.

W. F. Bowers, president of the Bowers Rubber Works, San Francisco, California, spent a large part of the month of December visiting the Eastern trade, reaching his old home in Lynn, Massachusetts in time to pass Christmas with his mother, which has been his annual custom for some time.

G. C. Sterling has resigned his position with the Penn Rubber Co., and the Boston Tire & Rubber Co., both of Boston, Massachusetts, in whose interests he has for some years covered New England territory, and has associated himself with the Hub Cycle Co., of Boston, for which concern he will continue to travel over his former territory.

D. Lorne McGibbon, president of the Canadian Rubber Co., of Montreal, Limited, and a director of the United States Rubber Co., is also president of the La Rose Consolidated Mines Co., which recently declared the regular quarterly dividend of 2 per cent., payable January 20, 1912, to stockholders of record December 30, 1911. He says that a statement will be issued to the stockholders very soon outlining the policy of the management with regard to the disposal of the cash surplus shown on hand by the last statement.

UNITED STATES RUBBER CO. DEFERS PRICE ANNOUNCEMENT.

THE United States Rubber Co. has sent out a notice to the trade that it will announce its new prices on February 1 instead of on January 1, as has been its usual custom, at least for some years past. The announcement does not give any intimation as to whether the prices will be advanced or reduced. In view of the reduction in the price of crude rubber the past year it is generally assumed that there will be no advance. The trade is hoping for a reduction, but if one is made it is likely to be small.

TRADE NEWS NOTES.

The creditors of the Mansfield Rubber Co., Mansfield, Ohio, held a meeting on December 9, to prove their claims, examine the bankrupt, appoint a trustee and transact other business that came before the meeting.

The company has filed in the United States District Court a schedule showing over \$191,000 of assets, with liabilities of over \$189,000.

The Gustin-Bacon Manufacturing Co., Kansas City, Missouri, will hereafter do a general business in various makes of automobile tires, instead of confining themselves as hitherto to the product of a single factory.

The Fisk Rubber Co., of Chicopee Falls, Massachusetts, will soon open direct factory branches in Brooklyn, New York; Pittsburgh, Pennsylvania; Cincinnati, Ohio, and Butte, Montana, increasing the total number of direct factory branches to thirty-four.

The Diamond Rubber Co., Akron, Ohio, has seven branches in California, one in San Diego, Los Angeles, Fresno, Oakland, Sacramento, and two in San Francisco. It also has stores in Portland, Seattle, Spokane and Salt Lake City.

There seems to be some unhappy influence that affects the Malden, Massachusetts, fire department whenever its services are needed at the factory of the Converse Rubber Shoe Co. The disastrous fire of last February, which caused a damage of \$200,000, will still be remembered. On December 7 there was a slight blaze in the shipping department of the factory and an alarm was rung in, but for some reason or other the numbers became mixed and the fire department hurried to a spot half a mile from the factory. By the time the error was corrected and the firemen had reached the rubber mill, the sprinkling system, assisted by a dozen workmen, had squelched the blaze with a small loss.

Among some interesting rubber information culled from a down east daily is this statement: "The rubber directors are now working on a plan to consolidate the Rubber Goods Manufacturing Co. with the United States Rubber Co., although there may be delay on account of the Rule of Reason in the Sherman law."

Inasmuch as this consolidation took effect nearly seven years ago, when the United States Rubber Co. purchased the control of the Rubber Goods Manufacturing Co., the delay on account of the Sherman law is not likely to be very serious.

The Intercontinental Rubber Co. declared, early in December, a dividend of 1¾ per cent. on its preferred stock, payable December 30 to stockholders of record on December 20.

People familiar with the motorcycle industry are estimating that over 40,000 of these machines will be built during the year 1912. With those already in use this will bring the number up to about 100,000. There are all told 32 companies, counting small as well as large companies, interested in the manufacture of motorcycles.

A new co-partnership—Arnold & Zeiss—has been formed under date of January 2, to carry on from that date the business of the late firm of Poel & Arnold, which expired by limitation on December 31, 1911.

Frank Poel, one of the general partners of the firm of Poel &

Arnold, retires from active business. Messrs. Heilbut, Symons & Co., of London and Liverpool, have become special partners, and the capital heretofore employed by them in the firm of Poel & Arnold will hereafter be employed in the business of "Arnold & Zeiss."

The Hartford Rubber Works Co. has so many orders on hand that it is working now with three shifts of eight hours each.

At a meeting of the stockholders of the Batavia Rubber Co., held at its office in Batavia, New York, December 8, it was voted to increase the capital stock from \$70,000 to \$500,000. Directors elected were Charles R. Rogers and E. E. Carpenter, of New York City; George E. Perrin and Ashton W. Caney, of Batavia, and John W. Mullen, of Morganville. Officers elected were as follows: Vice-president, Ashton W. Caney; secretary and treasurer, George E. Perrin. The office of president was left vacant, as it is expected that the position will be filled by a prominent New York financier and business man.

Ground was broken on December 9 for the factory of the International Automobile League Tire & Rubber Co., at Buffalo, New York.

The Gillette Rubber Co., the present name of what was formerly called the Humane Rubber Horse Shoe Co., of Montgomery, New York, has purchased a commodious plant at Fishkill-on-the-Hudson, main building being 40 x 140 feet, three stories high, with two "L" extensions 75 feet long, one being 24 feet wide and the other 30 feet wide, and both three stories in height. The company is equipped for making horse hoof pads, rubber cushioned horse shoes, automobile repair stock, and automobile tire casings.

A Cleveland daily contains the following item in regard to the earnings of one of the great Akron plants: "Net earnings of the B. F. Goodrich Co. for the year, it is stated, will be more than \$4,500,000, which is a half million over the entire par value of the company's preferred stock. In the thirty-one years of the company's existence it is stated that earnings every year have made gains over the previous year."

The plant of the Bourn Rubber Co., in Providence, was saved from what probably would have been a disastrous fire on December 4, by the perfect working of its sprinkler system and the fire-fighting brigade, made up of its employes. In the middle of the afternoon a "blow down" pipe, running between the boiler and the fire box of the engine burst. The pressure from the boiler blew the contents of the fire box out onto the floor of the engine room. In a second the room was in a blaze. The sprinkler system in the engine room, started by the rising temperature, began its work immediately and on the sounding of the automatic gong the fire brigade got to work, with the result that before the fire department had reached the plant the flames were extinguished.

N. B. Taylor, hitherto western district manager of the Goodyear Tire and Rubber Co., has succeeded A. C. Leonard as manager of the San Francisco branch.

The Goodyear Tire and Rubber Co. is erecting in Akron, Ohio, a fine office building, five stories high, which, it is asserted, when completed will be the largest office building in that city.

The new calender building of the Republic Rubber Co., Youngstown, Ohio, which will be one of the most complete calender departments in the United States, will be ready for operation in about a month.

The reclaiming mill of the Boston Woven Hose and Rubber Co., at Plymouth, Massachusetts, turned out a product for the last week in November of 166,000 pounds, which is the record output for that plant.

The Tyer Rubber Co., Andover, Massachusetts, has opened a coffee-room for the benefit of those employees who bring their lunches with them. Not only is hot coffee served with the lunches, but newspapers and periodicals are provided to help them utilize the noon hour in an agreeable and profitable way.

New Rubber Goods in the Market.

SOME GOODRICH DRUGGISTS' SUNDRIES.

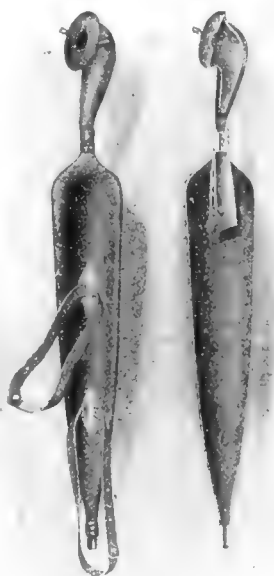
THE accompanying cut shows one of the Goodrich aural syringes. They are of one-piece construction with sloping neck, and have a pure gum tip to ensure a soft non-irritating entry into the channel of the ear.



AURAL SYRINGE.

Physicians and surgeons are especially appreciative of articles of fine texture, perfect finish and exactly adapted to the purpose required. The most finicky among them would find it hard to criticize the dainty, yet useful article here shown, as the workmanship and design leave nothing to be desired.

This is also true concerning the second appliance. Generally pure-gum



PURE GUM URINAL.

goods have a special attraction for those who know anything about rubber. They are costly, difficult to manufacture and to cure, but when perfect are the most attractive of all rubber goods. Pure gum is also for the purpose required in this article the only form of rubber that is really lasting. This urinal is made in a dozen different styles, the one in the illustration being known as No. 14 style, a male urinal suitable for either day or night use. The top is constructed in such a way as to lie naturally and comfortably against the body, and it is reinforced to insure retention of shape. It is equipped with inside double vent valve to prevent re-flow. [The B. F. Goodrich Co., Akron, Ohio.]

A PRACTICAL TIRE PROTECTOR.

A tire protector which really lengthens the life of the inner tube is now on the market. It is called "Casette" and is made of a specially prepared "gutta-percha" felt, pressed into tire form, the outer part being of the best rubber, and the inside lining of Sea Island cotton bear-back. The gutta-percha felt is $\frac{5}{8}$ of an inch thick, but when the inner tube is inflated becomes less than one-half its original thickness. This protector, slipped in between the outer casing or shoe, and the inner tube, is entirely loose at the tread, being caught by cement on the head only. They are made to fit any tires, are very easy to adjust and can be transferred from one tire to another of the same

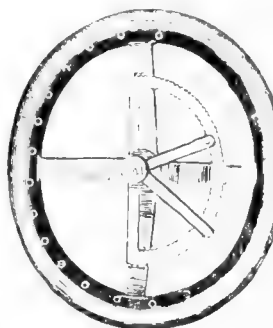


THE "CASSETTE" TIRE PROTECTOR.

size, of course, by loosening the cement with gasoline. [Goodfellow Tire Co., Detroit, Michigan.]

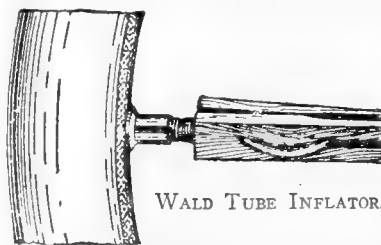
SOFT RUBBER STEERING WHEEL COVERS.

A much needed cover for automobile steering wheels was one made of rubber, and they are now being used on many wheels. This one in particular is made of a soft, pliable rubber, slides on over the wheel and is then laced into place until it fits smoothly. It prevents all slipping or chafing and protects the hands in winter from the extreme cold of the metal or wooden wheel. Although wheels finished in hard rubber are very handsome in appearance, they cannot be compared as to comfort with the soft rubber covering, for no matter how tightly the cover is fitted, a certain amount of air space is always between it and the wheel itself, forming a sort of a cushion for the hands to rest upon. [American Supply Co., New York.]



NEW TUBE DEFLATOR AND TIRE TOOL.

THE Wald Tube Deflator is a practical instrument for the motorist. It takes less than a minute to attach it to the valve of the tire. Its jaws are made of wood to prevent injuring the valve thread. Its grip is so tight that when the jaws are once closed it is an impossibility for them to jerk loose in any way.



WALD TUBE INFLATOR.

The same company manufactures a very simple but effective tool for repairing single-tube bicycle tire punctures, which is illustrated in the accompanying cut. The method of using this is as follows: After getting the size of the puncture, put rubber bands on the tool—one or two for small punctures, and three or four for large punctures. Then dip the tool filled with rubber bands in rubber cement, insert in the puncture immediately; release the catch and withdraw the tool by turning it from side to side. After a few minutes the tire is again ready for use. [Wald Manufacturing Co., Sheboygan, Wisconsin.]



WALD BICYCLE TIRE REPAIR TOOL.

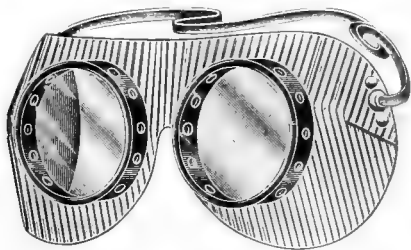
PENACLOTH FOR AEROPLANES.

THE Pennsylvania Rubber Co. has made quite a success of its fabric for covering aeroplanes, known as "Penacloth." It is rubber-proofed and colored yellow as a protector against the rays of the sun. This fabric is a trifle heavier than most of those now in use, but its strength is thus greatly increased. The manufacturers claim that a fabric of this strength helps to hold the structure together as much as the bracing wires do. A water-proofed fabric such as this protects the frame from dampness and does not stretch or shrink. It comes 40 inches in width. Its weight is not noticed appreciably, adding only about 7 pounds to the largest of machines. [The Pennsylvania Rubber Co., Jeannette, Pennsylvania.]

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

GOGGLES THAT DON'T GET HOT.

One drawback with a great many goggles that automobilists have to wear is that in the summer time they get so uncomfortably hot. Here are some goggles called "Non-Steam," which according to the contention of the makers, a contention backed by testimonials from users, are quite free from overheating of the



NON-STEAM RUBBER GOGGLES.

orbital space or steaming of the glasses. These goggles have been subjected to severe tests with the mercury ranging close to the century mark and have also been tried on threshing fields under dog-day conditions and have been pronounced very comfortable. [The Texas Co., Chicago, Illinois.]

FIREMEN'S WATERPROOF SUITS.

If there is any quality that firemen's clothes should possess, it is the quality of being waterproof. Here is an illustration of a suit of such a character consisting of coat and trousers. The suit is made of strong canvas duck in black, tan or white (white



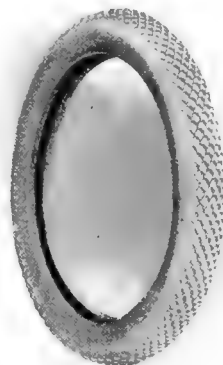
THE GLOBE FIREMAN'S SUIT.

goods being worn mostly by the chief as a distinguishing uniform), and are lined with black or red firemen's felt or with grey plaid moleskin. Between the canvas and the lining is a waterproof interlining. While in the regular stock goods no rubber is used, in the special goods made on order, the duck is coated with rubber, making the garment doubly waterproof. The coat is double-breasted and has strap and buckle at throat and wrist to

keep the water out; while the pockets have over-laps and snaps for the same purpose. [The Globe Manufacturing Co., Pittsfield, New Hampshire.]

A NON-SKID TIRE AND HOW IT IS MADE.

THE Goodyear Tire and Rubber Co. has a new non-skid tire that certainly looks different from any other, as it has a dark body and a white tread. The surface of the tread is covered with small diamond-shaped blocks, running lengthwise of the tire. The tread is made in this way: Seven layers of thin strips of rubber are laid one on another and the whole strip is then wrapped around a mould, put into a hydraulic press and subjected to such pressure that the rubber is forced into the diamond-shaped holes of the mould. Thus the tread is formed. It is then laid over a cement coated tire, wrapped very tightly, and the tire with this wrapping is then put into a vulcanizer where the union is made complete. [The Goodyear Tire and Rubber Co., Akron, Ohio.]



THE GOODYEAR NON-SKID TIRE.

CRAVENETTE CLOTH IN SHOE UPPERS.

CRAVENETTED cloth, although not a new material, is quite so in the make-up of footwear. It is now used for uppers in ankle and even low shoes. During the fall and winter they will be much worn, as the material protects the ankles and feet from dampness and cold. Cravenette cloth is easily kept clean, does not spot nor become shiny. It fits the foot perfectly and is in every way equal if not superior to the leather and cloth top shoes. It can be had in any of the much-worn colors now in vogue.



SHOE WITH CRAVENETTE UPPER.

The general cloth shoe, which has been quite fashionable for some time, is not worn quite as much now as it was a year ago, but this cravenette shoe, with its protective qualities, ought to become a permanent institution.

THESE cravenette shoes can hardly be expected to take the place of four-buckle gaiters or even arctics when there is deep snow on the ground, or to displace the storm slipper in hard driving rains, but in damp weather or in moderately gentle showers the cravenette will undoubtedly keep the feet from getting wet for a considerable length of time. [J. Einstein, New York.]



CRAVENETTE PUMP.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED NOVEMBER 7, 1911.

- N**O. 1,007,778. Automobile tire. De Forest L. Gates, Salamanca, N. Y.
 1,007,874. Tire protector. D. N. Jones, Gaylord, Minn.
 1,007,879. Massage instrument. D. Lee, Chicago Heights, Ill.
 1,007,889. Tire. J. B. Price, Beaumont, Tex.
 1,008,051. Tire. R. E. Olds, Lansing, Mich.
 1,008,083. Vehicle wheel. A. B. Simpson, New York.
 1,008,111. Resilient tire. C. W. Blake, Delaware City, Del.
 1,008,116. Vehicle wheel and tire. M. Clark, Chicago, Ill.
 1,008,117. Rubber swimming glove. J. W. Copeland and E. Hamilton, Wynne, Ark.
 1,008,284. Wheel tire. D. Ronconi, Baltimore, Md.

Designs.

- 41,920. Ball. F. A. Cigol, Paterson, N. J.

Trade Marks.

- 53,056. J. Walker & Co., London, S. E., England. The word *Lion* with illustration of same. For belting, hose, etc.
 55,007. Pahl'sche Gummi-und Asbest-Gesellschaft mit Beschränkter Haftung, Dusseldorf-Rath, Germany. The word *Polypyril* with illustration. For rubber and asbestos jointing material, etc.

ISSUED NOVEMBER 14, 1911.

- 1,008,430. Tire tool. C. Owen, W. W. Ickethorn, and S. W. Cole, Lamar, Col.
 1,008,573. Fastening for demountable rims. C. R. Twitchell, Los Angeles, Cal.
 1,008,604. Hand protector. G. Lake, Cleveland, Ohio.
 1,008,607. Machine for converting latex into sheets of crude rubber. F. E. Mellinger and H. H. Markley, Lumija, Mexico.
 1,008,641. Toy balloon. T. M. Gregory, Akron, Ohio.
 1,008,646. Apparatus for inflating the tires of vehicle wheels. F. Kassner, Frauenwaldau, Germany.
 1,008,680. Combined tire support and tool case. J. C. Temple, Whitefield, N. H.
 1,008,688. Tire. J. M. Benham and G. W. Slater, Oakland, Cal.
 1,008,772. Pneumatic tire. W. E. Andrew, Atlantic Highlands, N. J.
 1,008,815. Surgical apparatus for drying wounds or the like. H. A. W. Grube, Hamburg, Germany.
 1,008,819. Resilient tire. J. Hart, Bridgeport, Conn., assignor of one-fifth to H. L. Lewis, Stratford, Conn.
 1,008,909. Hose clamp. J. J. Higgins, Thomas, W. Va.
 1,008,993. Machine for reeling rubber-covered electric wire for vulcanization. T. J. Seward, assignor to The Electric Cable Co.—both of Bridgeport, Conn.
 1,009,002. Rubber-joint-making instrument. W. H. Welch, assignor to Harvey Frost & Co., Ltd.—both of London, England.

Trade Marks.

- 53,597. Boston Gore and Web Mfg. Co., Boston, Mass. The autograph signature of A. Hopkins. For elastic webbing.

ISSUED NOVEMBER 21, 1911.

- 1,009,051. Tire protector. G. C. Cross, Chattanooga, Tenn.
 1,009,062. Wheel. F. A. Frommann, St. Louis, Mo.
 1,009,088. Automobile wheel. C. S. Myers, Columbia, Pa.
 1,009,092. Tire armor. M. Pelz, New York.
 1,009,103. Demountable rim and tire. R. P. Scott, Cadiz, Ohio.
 1,009,191. Antislipping stud. T. Sloper, Devizes, England.
 1,009,192. Manufacture of articles built up from lengths of cord. T. Sloper, Devizes, England.
 1,009,264. Conveyor belt. W. W. Spadone, assignor to Gutta Percha & Rubber Mfg. Co.—both of New York.
 1,009,284. Automobile tire. F. M. Crispin, assignor of one-half to J. W. Hamer—both of Beverly, N. J.
 1,009,347. Vehicle wheel rim. E. C. Shaw, Akron, Ohio.
 1,009,368. Antislipping and antikidding attachment for tires. C. B. Woodworth, Niagara Falls, N. Y.
 1,009,382. Automobile tire pump. G. A. Collison, Burlington, Vt.
 1,009,423. Auxiliary rim for vehicle wheels. A. Latimer, London, England.
 1,009,445. Vehicle wheel rim. E. D. Shaw, Akron, Ohio.
 1,009,504. Apparatus for treating rubber compounds and the like. X. Gosselin, assignor to Millwall Rubber Co., Ltd.—both of Harpenden, England.
 1,009,529. Vehicle wheel rim. E. H. Koken, Akron, Ohio.
 1,009,591. Tire holder. N. P. Sjöholm, St. Louis, Mo.

Trade Marks.

- 53,501. G. G. Schuck, Bronxville, N. Y. The word *Hudson*. For valves, etc.
 58,065. New York Belting & Packing Co., Ltd., New York. The word *Piro*. For machinery packing, etc.

ISSUED NOVEMBER 28, 1911.

- 1,009,720. Vehicle wheel. J. Bustanoby, New York.
 1,009,765. Machine for manufacturing pneumatic tires. A. Mathern, Berlin, Germany.
 1,009,781. Tire tool. P. J. Nolan, Chester, Pa.
 1,009,966. Pneumatic tire. J. W. Haase and E. H. Haase, Amherst, Neb.
 1,010,014. Emergency tire for automobile wheels, etc. W. Budesheim and J. D. Strichcomb, Baltimore, Md., assignors to W. F. Beasley, Plymouth, N. C.
 1,010,031. Elastic hub wheel. C. Feroci, Rome, Italy.
 1,010,061. Puncture-proof tire. W. W. Lower, Tyrone, Pa.
 1,010,137. Vehicle tire and rim. J. E. Hale, assignor to The Goodyear Tire & Rubber Co.—both of Akron, Ohio.
 1,010,187. Boot and shoe. C. D. Scott, Kinston, N. C.
 1,010,230. Tire for the wheels of automobiles and other vehicles.
 1,010,234. Automobile tire. T. Christopherson, East Helena, Mont.
 1,010,236. Hose coupling. J. J. Cochran, San Francisco, Cal.
 1,010,258. Combined sectional tire and wheel rim. F. M. Henry, New York.
 1,010,309. Unsinkable boat. J. Pastorel, Asbury Park, N. J.
 1,010,380. Overshoe for horses. G. N. Kinnell, Pittsfield, Mass.
 1,010,381. Overshoe support for horses. G. N. Kinnell, Pittsfield, Mass.
 1,010,382. Non-slip or protective appliance for the hoofs of animals. G. N. Kinnell, Pittsfield, Mass.
 1,010,383. Overshoe and tread surface therefor. G. N. Kinnell, Pittsfield, Mass.
 1,010,384. Overshoe. G. N. Kinnell, Pittsfield, Mass.
 1,010,385. Emergency overshoe and link therefor. G. N. Kinnell, Pittsfield, Mass.
 1,010,386. Overshoe. G. N. Kinnell, Pittsfield, Mass.
 1,010,387. Overshoe. G. N. Kinnell, Pittsfield, Mass.

Trade Mark.

- 59,172. H. C. Freshour, Bridgeport, Conn. The words *The Star*. For rubber buckets.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1910.

*Denotes Patents for American Inventions.

- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 1, 1911.]
 16,353 (1910). Leather substitute impregnated with rubber and tar. E. Lapisse, Arcueil, Seine, France.
 16,407 (1910). Extracting rubber from plants. R. Bridge, Castleton, Lancashire.
 16,448 (1910). Improvement in breast pumps. E. Bamforth, Jeppestown, Transvaal.
 16,456 (1910). Purification of vulcanized india-rubber. P. J. Leemans, Vieux-Turnhout-lez-Turnhout, Belgium.
 *16,544 (1910). Heels with alternate layers of hard and soft rubber. S. Havens, Oakland, Cal., U. S. A.
 16,561 (1910). Repairing piece for rubber footwear. C. Maher, 49 Drolet street, Montreal, Canada.
 16,612 (1910). Rubber sponge lining for harness. W. Vogelbein, 61 Riehlerstrasse, Cöln-on-Rhine, Germany.
 16,629 (1910). Rubber bands or tubes for bobbins of artificial silk. R. Pawlikowski, Görlitz, Germany.
 16,758 (1910). Rubber substitute made by interaction of wood oil and resin oil. A. R. Van Der Burg, Schiedam, Holland.
 16,853 (1910). Grooved rollers for mangling machines. J. Rawlins, 34 West Gate, Chichester.

- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 8, 1911.]
 16,901 (1910). Pneumatic cushioning devices. L. Harris, 169 New Bond street, London.
 16,910 (1910). Rubber tires for perambulators, etc. E. C. R. Marks, 57 Lincoln's Inn Fields, London.
 16,996 (1910). Portable cases with rubber sides. B. Huberman, 13 Neustiftstrasse, Vienna.
 17,066 (1910). Protection of rubber sleeves of valves. E. C. Austin, Wanganui, New Zealand.
 17,119 (1910). Repairing of pneumatic tires. E. L. Barry, 357 North End road, Fulham, London.
 *17,159 (1910). Warning rubber strips on poison bottles. C. Van C. Gear, 11 Jones street, San Francisco, Cal., U. S. A.
 17,213 (1910). Use of rubber cement in compartments of buoyant apparel. J. Berman, Lower Broughton, and A. Berman, Cheetham—both in Lancashire.
 17,251 (1910). Rubber blocks in tires. F. Schiller, 612 Belcredistrasse, Prague, Austria.
 17,258 (1910). Elastic insertions for various articles. H. Hes and A. Goldsmith, Kingswood, Bristol.

GREAT BRITAIN AND IRELAND.

- 17,392 (1910). Resilient substance for golf balls, etc. W. Barbour, 3 Edelweiss Terrace, Partickhill, Glasgow.
- 17,427 (1910). Coating surfaces with rubber solution. F. W. Golby, 36 Chancery Lane, and H. C. Ahrlé, 45 Drayton Park, Highbury—both in London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 15, 1911.]

17,506 (1910). Rubber as a protective substance for propeller shafts. Continental Tire & Rubber Co., London, and M. Willenius, Weggis, Lucerne, Switzerland.

- 17,539 (1910). Coating of rubber solution for solidified wood pulp. J. L. Clark, 255 Cromwell road, South Kensington, London.
- 17,596 (1910). Waterproofing hides and leather with pulverized old vulcanized rubber. F. G. Browne, Murrumbidgee, Victoria, Australia.

- 17,644 (1910). Portable breathing apparatus for miners, etc. H. A. Fleuss, Thatcham, Berkshire, and R. H. Davis, 187 Westminster Bridge road, London.

- 17,645 (1910). Reforming waste rubber. W. A. Allsebrook, and P. A. Doherty—both in Burton-on-Trent.

- 17,734 (1910). Preparation of artificial rubber from isoprene. Farbenfabriken vorm. F. Bayer & Co., Elberfeld, Germany.

- 17,857 (1910). Use of rubber in plugs of tread bands. G. Schulainere, H. Senal and U. Toulouse, 9 Avenue de Saint-Ouen, Paris.

- 17,924 (1910). Rubber strips in tire foundations. R. I. Rose, Brunswick street, Liverpool, and A. Rae, 17 Northbrook road, Seacombe, Cheshire.

- 17,941 (1910). Use of impregnated strips of coir in tires. Coir Tire Co. and G. D. Rose, Northern Assurance Bldgs., Manchester.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 22, 1911.]

- 18,056 (1910). Use of rubber as filling for wire balloon fabric. W. H. von Mach, Zoppot, Germany.

- 18,077 (1910). Elastic fastenings for wearing apparel. A. Kingston, Wellingtonborough.

- 18,085 (1910). Use of rubber in toy building blocks. C. Skaife, Fairfield, and F. Sugg, Ltd., 12 Lord street—both in Liverpool.

- 18,172 (1910). Use of rubber suction pads in bobbins. B. E. Edwards, Thornton Heath, Surrey.

- 18,174 (1910). Improvements in molding india-rubber. T. Gare, New Brighton, Cheshire.

- 18,184 (1910). Hard rubber small printing cylinders. E. Mertens, Freiburg, Breisgau, Germany.

- 18,214 (1910). Improvement in latex cups. W. A. Bailey, 148 Audrey House, Ely Place, London.

- 18,352 (1910). Tire jackets and covers with continuous layers. G. D. Whiteman, 18 Tirlmont road, South Croydon, Surrey.

- *18,353 (1910). Non-skid bands for tires. H. A. Gamble, 2559 Harrison street, San Francisco, Cal., U. S. A.

- 18,375 (1910). Improvements in extracting and washing rubber. R. Hadan, 31 Bedford street, London.

- 18,398 (1910). Prevention of oxidation of accumulator plates. Accumulateurs Tudor Soc. Anon., Brussels.

- 18,418 (1910). Improvements in tread bands. J. G. A. Kitchen, Scotforth, and I. H. Storey, Ambleside.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 29, 1911.]

- 18,592 (1910). Rubber discs in vehicle wheels. A. F. Spencer, Margate.

- 18,619 (1910). Use of rubber blocks in making dental plates. R. Lamb, 51a Rodney street, Liverpool.

- 18,620 (1910). Use of rubbered fabrics in wheel cushions. W. S. Boulton, 32 North Side, Wadsworth Common, London.

- 18,647 (1910). Rubber base for foot rests. D. C. Hannah, Alexandra Parade, Dennistoun, Glasgow.

- *18,668 (1910). Embossing of rubber sheets. V. Chartener, 47 Allen street, Pittsburgh, Pa., U. S. A.

- 18,692 (1910). Surgical suspensory appliances. S. P. Musson, Thornton Heath, Surrey.

- 18,714 (1910). Rubber tired friction wheel for gramophones. C. W. Tibbits, 60 Castle street, and W. J. Turner, 26 Jasmine street—both in Liverpool.

- 18,855 (1910). Inflatable bags of canvas and rubber for raising ships. E. Burdfield, 15 Cumberland road, Plaistow, Essex, and A. Fenwick, 241 Cleveland road, Sunderland.

- 18,973 (1910). Pneumatic massage appliance. J. Heywood, 169 Union street, Oldham, Lancashire.

- 18,978 (1910). Improvements in manufacture of golf balls. J. P. Cochran, Murano Works, Edinburgh.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

- 428,634 (April 18, 1911). Société Russo-française. "Prowodnik" rubber sponge.

- 428,861 (April 24). R. Rankin. Treatment of latex from rubber trees and similar vegetation.

- 428,868 (April 24). J. Hamilton. Compositions with resinous bases and methods for their production.

- 428,878 (April 24). Continental Caoutchouc and Gutta Percha Co. Balloon fabric and process of manufacture.

- 428,886 (April 25). J. Kaufmann. Process for metallic incrustations in masses of celluloid, hard rubber, etc.

- 429,030 (April 28). C. Caille. Pneumatic tires for vehicles.

- 429,016 (April 28). L. Garnier. Elastic tires for vehicles.

- 429,057 (March 20). De Caritat & Peruzzis. Portable automatic vulcanizer for repairing tires.

- 429,108 (April 29). J. G. A. Kitchen and T. H. Storey. Homogeneous repairing of rubber tires.

- 429,138 (April 29). O. Walter. Method and apparatus for vulcanizing special rubber surfaces.

- 429,219 (May 2). E. F. Dregon and F. E. Pfister. Pneumatic tire.

- 429,179 (May 1). Compagnie Générale d'extraction de Caoutchouc. Mechanical dry extraction of rubber.

- 429,262 (May 4). L. Jachiet. Rubber preserver for ankles of pants.

- 429,347 (April 3). O. R. Van Vechten and F. J. Grace. Braiding machine for tubular fabrics.

- 429,327 (March 27). H. Gundlach. Cover for vehicle wheels.

- 429,444 (May 6). R. Latour and Cappellet. Machine for making cords with rubbered fibers.

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

- 241,056 (from July 17, 1907). E. Rouxville, Paris. Process for making a substitute for rubber.

- 241,348 (from May 23, 1911). Jacob Petry, Pittsburgh, U. S. A. Suction plate for artificial teeth.

- 241,330 (from November 4, 1910). Dr. Kurt Lossen, Frankfurt a. M. Foot bandage.

- 241,457 (from June 8, 1910). Julius Kehler, Berne, Switzerland. Appliance for fitting rubber discs on porcelain bottle stoppers.

- 241,298 (from February 26, 1911). Gebrüder Häberer, Rodewisch i. V. Balloon material of rubbered fibrous fabric.

- 241,616 (from April 21, 1909). Oswald Silberrad, Buckhurst Hill, England. Dressing of leather by incorporation of rubber in its pores.

- 241,549 (from April 27, 1911). Weintraud & Co., G. m. b. H., Offenbach a. M. Fastening of antiskid covers to tires.

- 241,550 (from August 6, 1909). Frederick Elijah Blaisdell, Hammersmith, England. Elastic tire with rubber bands wound round an inner core.

- 241,735 (from April 15, 1910). Robert John Caldwell, Southampton, England; Fritz Pfeumer and Pneumatic Syndicate, Limited, London. Appliance for production by stirring of an elastic cellular substance.

- 241,650 (from November 25, 1910). Rodolphe Retzer and Adolphe Wilhelm Bernhardt, Paris. Toy aeroplane with rubber motor.

- 241,775 (from August 26, 1910). Haessler & Völcker, Madgeburg. Preparation of vulcanized fiber for treatment with leather polish.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for five weeks, ending December 23:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend, October 31, 1911—1%.

Week	December 2	Sales	3,700 shares	High	47½	Low	45½
Week	December 9	Sales	3,700 shares	High	46¼	Low	45¾
Week	December 16	Sales	11,210 shares	High	48½	Low	46⅞
Week	December 23	Sales	5,000 shares	High	48¾	Low	47½

For the year—High, 48½, December 16; Low, 30½, September 25.

Last year—High, 52½; Low, 27.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, October 31, 1911—2%.

Week	December 2	Sales	475 shares	High	109¾	Low	109
Week <td>December 9 <td>Sales <td>1,200 shares <td>High <td>109¾ <td>Low <td>109</td> </td></td></td></td></td></td>	December 9 <td>Sales <td>1,200 shares <td>High <td>109¾ <td>Low <td>109</td> </td></td></td></td></td>	Sales <td>1,200 shares <td>High <td>109¾ <td>Low <td>109</td> </td></td></td></td>	1,200 shares <td>High <td>109¾ <td>Low <td>109</td> </td></td></td>	High <td>109¾ <td>Low <td>109</td> </td></td>	109¾ <td>Low <td>109</td> </td>	Low <td>109</td>	109
Week <td>December 16 <td>Sales <td>1,300 shares <td>High <td>110¾ <td>Low <td>109</td> </td></td></td></td></td></td>	December 16 <td>Sales <td>1,300 shares <td>High <td>110¾ <td>Low <td>109</td> </td></td></td></td></td>	Sales <td>1,300 shares <td>High <td>110¾ <td>Low <td>109</td> </td></td></td></td>	1,300 shares <td>High <td>110¾ <td>Low <td>109</td> </td></td></td>	High <td>110¾ <td>Low <td>109</td> </td></td>	110¾ <td>Low <td>109</td> </td>	Low <td>109</td>	109
Week <td>December 23 <td>Sales <td>700 shares <td>High <td>110½ <td>Low <td>110</td> </td></td></td></td></td></td>	December 23 <td>Sales <td>700 shares <td>High <td>110½ <td>Low <td>110</td> </td></td></td></td></td>	Sales <td>700 shares <td>High <td>110½ <td>Low <td>110</td> </td></td></td></td>	700 shares <td>High <td>110½ <td>Low <td>110</td> </td></td></td>	High <td>110½ <td>Low <td>110</td> </td></td>	110½ <td>Low <td>110</td> </td>	Low <td>110</td>	110

For the year—High, 115½, July 7; Low, 104, September 25.

Last year—High, 116½; Low, 99.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, October 31, 1911—1½%.

Week	December 2	Sales	100 shares	High	75½	Low	75½
Week <td>December 9 <td>Sales <td>— shares <td>High <td>—</td> <td>Low <td>—</td> </td></td></td></td></td>	December 9 <td>Sales <td>— shares <td>High <td>—</td> <td>Low <td>—</td> </td></td></td></td>	Sales <td>— shares <td>High <td>—</td> <td>Low <td>—</td> </td></td></td>	— shares <td>High <td>—</td> <td>Low <td>—</td> </td></td>	High <td>—</td> <td>Low <td>—</td> </td>	—	Low <td>—</td>	—
Week <td>December 16 <td>Sales <td>400 shares <td>High <td>76</td> <td>Low <td>75¾</td> </td></td></td></td></td>	December 16 <td>Sales <td>400 shares <td>High <td>76</td> <td>Low <td>75¾</td> </td></td></td></td>	Sales <td>400 shares <td>High <td>76</td> <td>Low <td>75¾</td> </td></td></td>	400 shares <td>High <td>76</td> <td>Low <td>75¾</td> </td></td>	High <td>76</td> <td>Low <td>75¾</td> </td>	76	Low <td>75¾</td>	75¾
Week <td>December 23 <td>Sales <td>— shares <td>High <td>—</td> <td>Low <td>—</td> </td></td></td></td></td>	December 23 <td>Sales <td>— shares <td>High <td>—</td> <td>Low <td>—</td> </td></td></td></td>	Sales <td>— shares <td>High <td>—</td> <td>Low <td>—</td> </td></td></td>	— shares <td>High <td>—</td> <td>Low <td>—</td> </td></td>	High <td>—</td> <td>Low <td>—</td> </td>	—	Low <td>—</td>	—

For the year—High, 79, March 1; Low, 66, September 26.

Last year—High, 84; Low, 59½.

SIX PER CENT. TRUST GOLD BONDS, \$19,000,000.

Outstanding of the 1908 issue of \$20,000,000.

Week	December 2	Sales	28 shares	High	104½	Low	104
Week <td>December 9 <td>Sales <th>23 shares</th> <td>High <td>104½</td> <td>Low <td>104</td> </td></td></td></td>	December 9 <td>Sales <th>23 shares</th> <td>High <td>104½</td> <td>Low <td>104</td> </td></td></td>	Sales <th>23 shares</th> <td>High <td>104½</td> <td>Low <td>104</td> </td></td>	23 shares	High <td>104½</td> <td>Low <td>104</td> </td>	104½	Low <td>104</td>	104
Week <td>December 16 <td>Sales <th>35 shares</th> <td>High <td>104½</td> <td>Low <td>104</td> </td></td></td></td>	December 16 <td>Sales <th>35 shares</th> <td>High <td>104½</td> <td>Low <td>104</td> </td></td></td>	Sales <th>35 shares</th> <td>High <td>104½</td> <td>Low <td>104</td> </td></td>	35 shares	High <td>104½</td> <td>Low <td>104</td> </td>	104½	Low <td>104</td>	104
Week <td>December 23 <td>Sales <th>25 shares</th> <td>High <td>104½</td> <td>Low <td>104</td> </td></td></td></td>	December 23 <td>Sales <th>25 shares</th> <td>High <td>104½</td> <td>Low <td>104</td> </td></td></td>	Sales <th>25 shares</th> <td>High <td>104½</td> <td>Low <td>104</td> </td></td>	25 shares	High <td>104½</td> <td>Low <td>104</td> </td>	104½	Low <td>104</td>	104

For the year—High, 105, July 15; Low, 101¼, September 30.

Last year—High, 106; Low, 102¾.

THE FEDERAL'S FINE REMODELED PLANT.

THE Federal Rubber Manufacturing Co., with very strong accent on the *manufacturing* to distinguish it from the former company, which was the Federal Rubber Co., is ready now to put its fine new, greatly enlarged plant into full operation. This

is considered one of the best in the country. It is situated on an ample tract of land at Cudahy, Wisconsin, a suburb of Milwaukee, on the main line of the Chicago and Northwestern Railroad.

Among the new buildings erected is an administration building constructed of concrete and pressed brick, simple, but at the same time handsome in design, finished inside in quartered oak



BYRON C. DOWSE.
[President.]



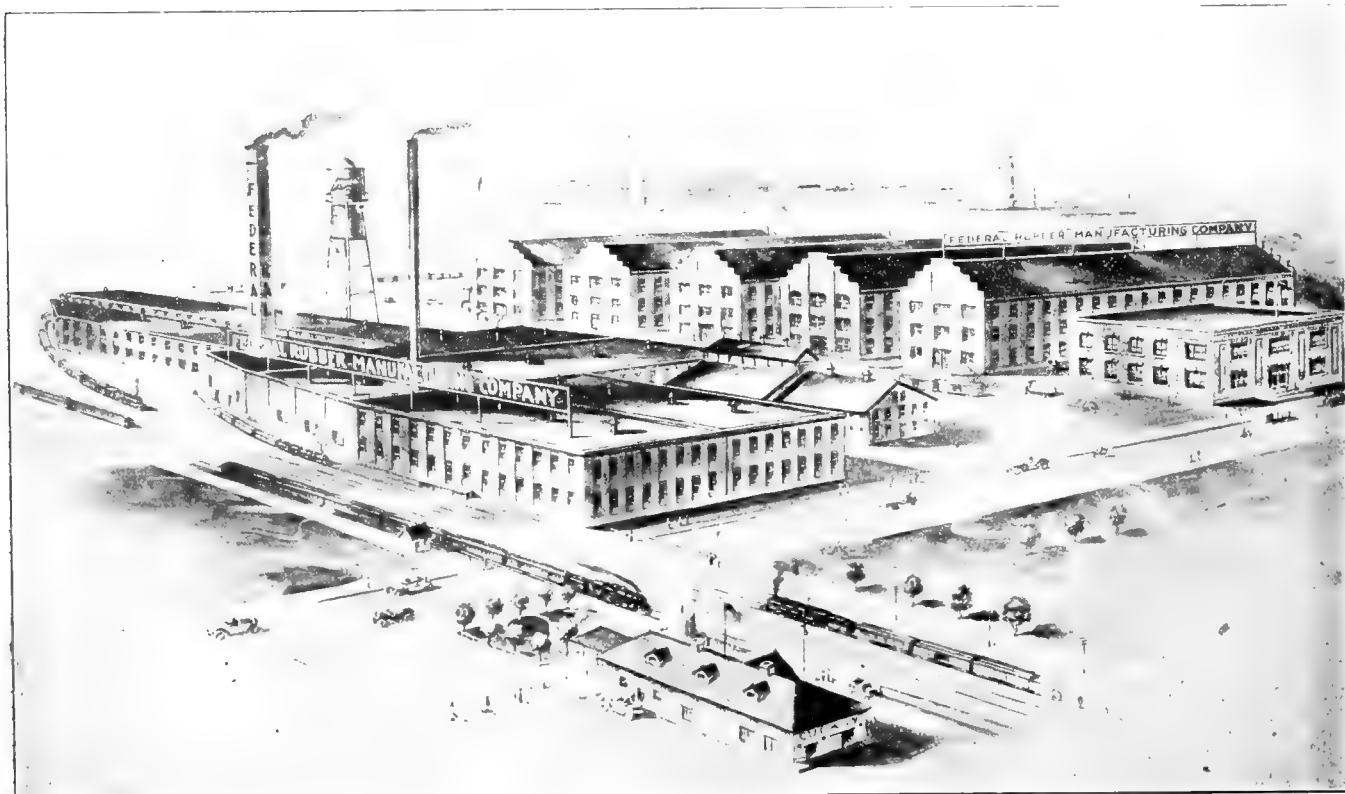
HERBERT A. GITHENS.
[Vice-President.]



RICHARD WARD.
[Secretary-Treasurer.]

plant includes the old factory of the Federal Rubber Co., to which many new buildings have been added. Two hundred thousand dollars have been spent in making these additions and improvements, and the plant now consists of 26 different buildings, and

and equipped with all modern improvements, including a dining-room for employees. Every department has been put on a thoroughly modern basis. The tire department, occupying two buildings, contains a complete equipment of tire building ma-



FEDERAL RUBBER MANUFACTURING CO., CUDAHY, WISCONSIN.

chinery, vulcanizing presses, motorcycle and bicycle tire molds, and has a total capacity of about 1,000,000 automobile and other tires per year. The company has its own reclaiming plant, to which an entire building is devoted.

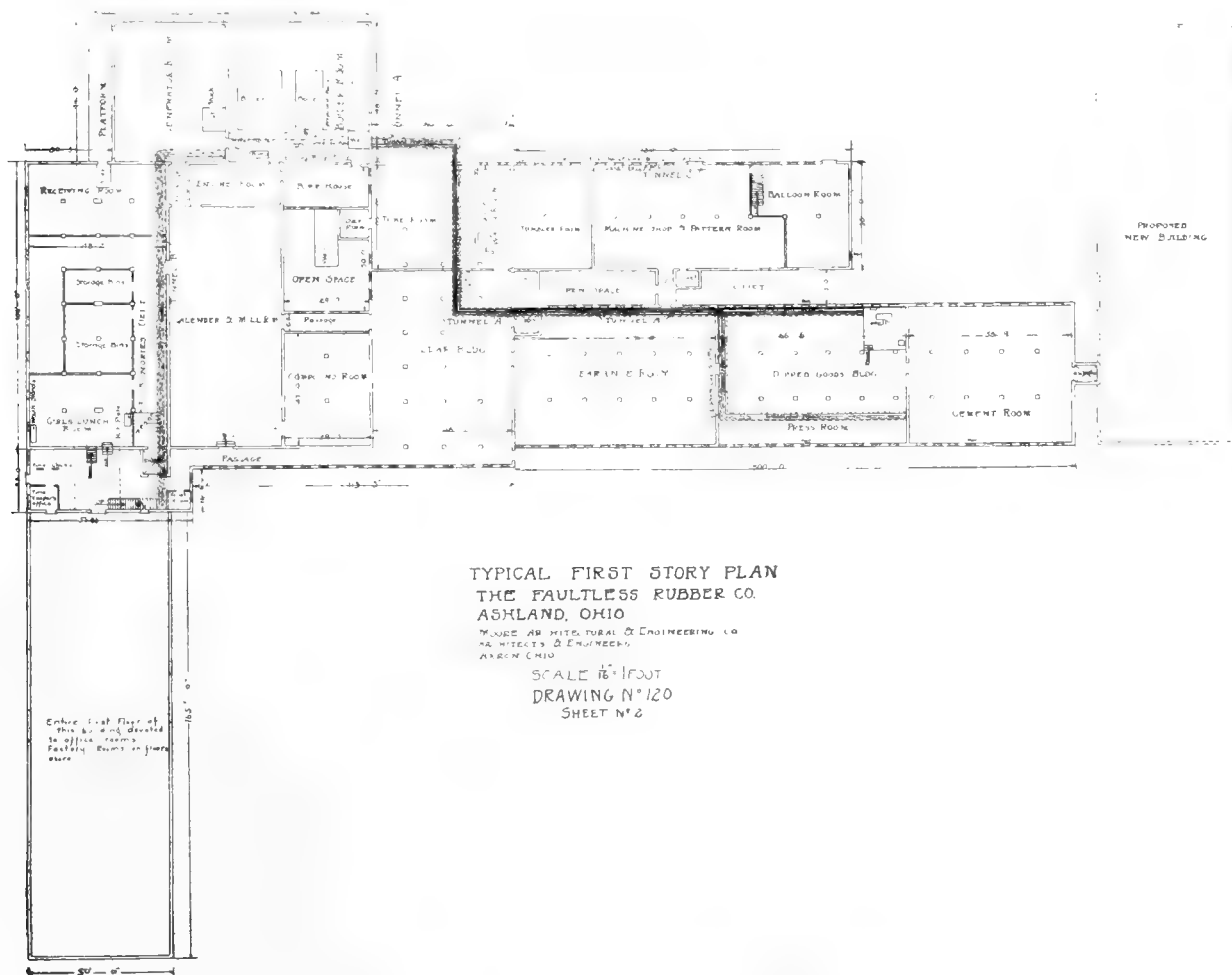
In addition to automobile, motorcycle and bicycle tires, the Federal Company's line includes solid truck, vehicle and baby cab tires, motor accessories, rubber horseshoe pads, rubber heels and mechanical rubber goods of all descriptions, including matting, packing, moulded goods and plumbers' supplies.

The officials of the Federal company are well known to the rubber and automobile trade. Byron C. Dowse, formerly president of the G & J Tire Co., of Indianapolis, is its president; Herbert A. Githens, vice-president and sales manager, formerly held the same position with the G & J company, and Richard Ward, secretary-treasurer, formerly served the G & J company in that capacity. The good-will enjoyed by these gentlemen in their former connections, and their wide acquaintance in the automobile, motorcycle and bicycle tire market, have already brought to the Federal company a large volume of business.

basement used for storage purposes. The first floor is occupied by the offices and the shipping department. The second floor includes the hand-made department, dining room, hospital room, girls' rest room, and packing room, and the third floor comprises the paper box department, stock and storage room for finished merchandise.

The power building is 50 x 100, one story high. When present improvements are completed the power will be electricity generated by gas engines, the gas for which, as well as for the boilers, comes from the company's local wells. The mill and calender room occupies a building 50 x 100, one story high, and the compound and dry rooms a building 50 x 50, three stories high. In the two wings, one 50 x 250 and three stories high, the other 50 x 125 and two stories high, are the tubing department, press goods department, machine and carpenter shop, vulcanizers, vapor and acid cure rooms and finishing rooms for dipped goods.

The new dipped goods plant is 85 x 155, one story and basement. A feature of this building is that it is divided into five



THE PLANT OF THE FAULTLESS RUBBER CO.

THE Faultless Rubber Co., Ashland, Ohio, has one of the most modern and completely appointed plants for the manufacture of rubber sundries and specialties to be found anywhere. It has an extensive group of buildings as is shown by the reproduction of the ground plan given below, and its floor space is in excess of 150,000 square feet.

The buildings are of brick and concrete construction, the main building being 50 x 300 and three stories high, with a

fireproof compartments, has no windows in the side walls, and is lighted by means of a saw-tooth roof. The air in each of the five departments is continually changing and is automatically regulated as to temperature and humidity.

The company's product embraces hand-made, molded and dipped water bottles, syringes, gloves, nipples, cots and miscellaneous sundries, a general line of surgical rubber goods, bath caps, sponge bags, soap trays, brushes and a general line of toilet goods, a line of novelty goods, including decorated, gas, and air balloons, tubing, rubber cements, rubber sponges, and sponge products of all descriptions.

Review of the Crude Rubber Market.

ILLUSTRATING the effects of the quiet demand to be looked for in the closing months of the year, the London price of Upriver fine has again fluctuated between narrow limits of variation; the average having been for November 4s. 3½d., and for December 4s. 4½d. The lowest and highest points touched within the last two months have been 4s. 3d., and 4s. 5½d.; the closing figure being 4s. 4d.

The attitude of buyers has reflected doubts as to whether consumption is in a position to absorb the expected supplies from the Far East, even after a scaling down of the original estimates. One satisfactory feature has tended to impart stability to the European markets, viz., that the operation of manufacturing plants is on a larger scale—or so it is reported—than is usually the case at this period of the year.

Another point which has received consideration, is that the many new uses of rubber encouraged by the low prices lately ruling, are beginning to absorb much of the increased Asiatic production.

The American market has displayed a conservative policy on the part of buyers, similar to that witnessed in Europe.

A somewhat unlooked for feature of the European market was an advance at the Antwerp auctions of December 15, which encouraged the belief that the buyers were willing to take risks in preference to further delaying operations. The improvement recorded at the Havre sales of Congo rubber on December 19, failed to stimulate London operations, the advance being attributed to special demands. Very good prices were realized at the Amsterdam sales of December 15.

The London sales of December 20 showed a decline of 2d. to 3d. in plantation rubber, while the unsold third of the quantity offered was subsequently placed at a slight further decline on the prices established the preceding week.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and December 30—the current date.

PARÁ	Jan. 1, '11.	Dec. 1, '11.	Dec. 30, '11.
Islands, fine, new.....	118@119	93@ 94	96@ 97
Islands, fine, old.....	122@123	96@ 97	98@ 99
Upriver, fine, new.....	137@138	103@104	104@105
Upriver, fine, old.....	140@141	107@108	108@109
Islands, coarse, new.....	70@ 71	58@ 59	62@ 63
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	100@101	89@ 90	89@ 90
Upriver, coarse, old.....	104@105	none here	none here
Cametá.....	72@ 73	60@ 61	63@ 64
Caucho (Peruvian) ball.....	99@100	89@ 90	88@ 89
Caucho (Peruvian) sheet.....	none here	none here	none here

PLANTATION PARÁ.

Fine smoked sheet.....	156@157	117@118	115@116
Fine pale crepe.....	143@144	118@119	119@120
Fine sheets and biscuits.....	138@139	113@114	115@116

CENTRALS.

Esmeralda, sausage.....	94@ 95	83@ 84	86@ 87
Guayaquil, strip.....	none here	none here	none here
Nicaragua, scrap.....	89@ 90	82@ 83	83@ 84
Panama.....	none here	none here	none here
Mexican, scrap.....	88@ 89	81@ 82	84@ 85
Mexican, slab.....	56@ 57	none here	53@ 54
Mangabeira, sheet.....	75@ 76	62@ 63	62@ 63
Guayule.....	65@ 66	47@ 48	53@ 54
Balata, sheet.....	74@ 75	86@ 87	81@ 82
Balata, block.....	52@ 53	55@ 56	53@ 54

AFRICAN.

Lopori ball, prime.....	120@121	101@102	101@102
Lopori strip, prime.....	none here	none here	none here

Aruwimi.....	104@105	100@101	100@101
Upper Congo ball, red.....	108@109	96@ 97	none here
Ikelemba.....	none here	none here	none here
Sierra Leone, 1st quality.....	119@120	84@ 85	89@ 90
Massai, red.....	119@120	85@ 86	90@ 91
Soudan, Niggers.....	105@106	81@ 82	none here
Cameroon ball.....	65@ 66	63@ 64	62@ 63
Benguela.....	82@ 83	62@ 64	64@ 65
Madagascar, pinky.....	none here	75@ 76	none here
Accra, flake.....	44@ 45	27@ 28	26@ 27

EAST INDIAN.

Assam.....	93@ 94	none here	none here
Pontianak.....	6@6¼	5½	none here
Borneo.....	none here	none here	none here

Late Pará cables quote:

	Per Kilo.	Exchange	Per Kilo.
Islands, fine.....	4\$400	.....	16 9-32d.
Islands, coarse.....	2\$500	.....	16 9-32d.
Latest Manáos advices:			
Upriver, fine.....	5\$400	Upriver, coarse.....	4\$200

New York.

IN REGARD to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During December there has been a fair demand for paper, though not as good as in November, and rates have been a little higher, ruling at 4½@5 per cent. for the best rubber names, and 5½@6 per cent. for those not so well known."

NEW YORK PRICES FOR NOVEMBER (NEW RUBBER).

	1911.	1910.	1909.
Upriver, fine.....	\$0.99@1.06	\$1.36@1.52	\$1.93@2.03
Upriver, coarse.....	.87@ .91	1.02@1.07	1.17@1.21
Islands, fine.....	.93@1.00	1.20@1.28	1.72@1.84
Islands, coarse.....	.57@ .60	.73@ .75	.69@ .72
Cametá.....	.60@ .62	.75@ .78	.80@ .84

African Rubbers.

NEW YORK STOCKS (IN TONS).

November 1, 1910.....	100	June 1, 1911.....	90
December 1.....	140	July 1.....	90
January 1, 1911.....	115	August 1.....	90
February 1.....	115	September 1.....	112
March 1.....	11	October 1.....	67
April 1.....	98	November 1.....	45
May 1.....	98	December 1.....	60

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

1911.			
July 7.....	4/2½	October 6.....	4/7
July 14.....	4/5½	October 13.....	4/5
July 21.....	4/7	October 20.....	4/6½
July 28.....	4/8	October 27.....	4/4
August 4.....	4/7½	November 3.....	4/3
August 11.....	4/7½	November 10.....	4/4½
August 18.....	4/7½	November 17.....	4/3
August 25.....	4/10½	November 24.....	4/3½
September 1.....	4/8½	December 1.....	4/4½
September 8.....	4/9	December 8.....	4/5½
September 15.....	5/	December 15.....	4/4½
September 22.....	4/10½	December 22.....	4/4
September 29.....	4/8		

RUBBER ARRIVALS FROM THE CONGO.

NOVEMBER 16, 1911.—BY THE STEAMER *Bruxellesville*:

Bunge & Co.....	(Société Générale Africaine) kilos	29,000
Do.....	(Chemins de fer Grands Lacs)	3,700
Do.....	(Comptoir Commercial Congolais)	11,400
Do.....	(Alberta)	200
Société Commerciale Anversoise.....	(Intertropical)	11,200
Do.....	(Cie. franc. du Haut Congo)	5,800
Do.....	(Société Comm. and Minière)	9,600
L. & W. Van de Velde.....	(Cie. du Kasai)	70,000
Do.....	(Société Comm. and Financ. Africaine)	8,000
Congo Trading Co.....		3,000
E. Van Steensel.....		4,000
		153,850

Rubber and Caucho Receipts at Manaos.

	October.		
FROM—	1911.	1910.	1909.
Rio Purus-Acre	1,602	1,552	709
Rio Madeira	288	363	717
Rio Juruá	133	138	338
Rio Javary-Iquitos	768	657	892
Rio Solimões	107	207	100
Rio Negro	24	1	10
Total	2,922	2,918	2,766
For Shipment From—			
Manáos	1,981	2,054	2,190
Pará	941	864	576
Total	2,922	2,918	2,766

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.			Total		
	Fine and	Medium.	Coarse.	1911.	1910.	1909.
Stocks, October 31.....tons	310	42	=	352	211	216
Arrivals, November	1,379	504	=	1,883	1,432	1,734
Aggregating	1,689	546	=	2,235	1,643	1,950
Deliveries, November	1,384	493	=	1,877	1,487	1,732
Stocks, November 30....	305	53	=	358	156	218
	PARA.			ENGLAND.		
	1911.	1910.	1909.	1911.	1910.	1909.
Stocks, October 31.tons	3,475	875	230	750	1,120	230
Arrivals, November....	3,240	3,550	4,370	1,146	1,098	1,220
Aggregating	6,715	4,425	4,600	1,896	2,218	1,450
Deliveries, November...	3,665	3,235	3,215	961	883	950
Stocks, November 30	3,050	1,190	1,385	935	1,335	500
				1911.	1910.	1909.
World's visible supply, November 30..tons				5,529	4,591	3,757
Pará receipts, July 1 to November 30....				11,190	11,085	11,830
Pará receipts of caucho, same dates.....				1,400	2,090	1,530
Afloat from Pará to United States, Nov. 30				256	420	839
Afloat from Pará to Europe, Nov. 30....				930	1,490	815

Rubber Stock at Para

A reduction of stock at Pará brought the quantity on hand November 30 below that of September 30, which had been slightly increased on October 31, thus constituting the lowest point recorded since January last.

1911.	Tons.	1911.	Tons.
January 31.....	2,085	June 30.....	4,545
February 28.....	3,787	July 31.....	3,884
March 31.....	4,214	August 31.....	3,450
April 30.....	5,104	September 30.....	3,102
May 31.....	5,350	October 31.....	3,320
		November 30.....	3,050

Para.

R. O. AHLERS & Co. report [December 1]:

Market has been steady without any alteration of importance.

R. O. AHLERS & Co. REPORT [DECEMBER 11, 1911]:

Market showed a slightly firmer tendency. Reports from Upriver say that the rainy season has set in rather early this year and that the crops of some rivers, like the Javary and Juruá, must be considered as finished.

Liverpool.

WILLIAM WRIGHT & Co. REPORT [DECEMBER 1]:

Fine Pará.—With a dull trade demand the volume of business is small. Market has been subject to speculative manipulation; prices have varied from 4s. 2½d. to 4s. 5d; supplies are plentiful (considering the large increase in plantation kinds); consequently there seems to be no reason at present for any heavy advance. On the other hand, manufacturers seem disposed to buy at about 4s. 2d., and, speaking generally, we think they are bare of stock,

but the unsold speculative stock of 3,500 tons still acts as a drag on the market; the sooner it is cleared out the better for both holders and consumers. Closing value: Hard Fine, 4s. 5d [\$1.07]; Island, 3s. 11d. [95 cents]. Receipts for the month are 3,530 tons, including 250 tons Caucho, against 2,990 tons last month and 3,790 tons last year, bringing the crop up to date to 12,170 tons, against 13,140 tons last season. Receipts in December are expected to show an increase of 1,000 tons, against corresponding month of last year. Deliveries for the month are 1,184 tons, against 980 tons last month, and 1,369 tons last year, totaling 6,091 tons, against 4,839 tons in 1910.

Amsterdam

JOOSTEN & JANSSEN report [December 16].

Owing to keen competition, the lots offered for sale 15th inst. were sold at very good prices, except about 8,500 pounds Borneo and 1,000 pounds thick Ceylon crepe which remained unsold. For the latex lots, holder is asking equivalent of \$1.24½ per pound. The highest price paid for a lot of palish, part light brown *Hevea* crepe equalled \$1.23½ per pound, and for fine plantation Rambong up to the equivalent of \$1.08 was obtained. The next sales will take place on January 19, 1912.

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

NOVEMBER 27.—By the steamer *Christopher*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold	160,300	18,600	41,500	5,100	=225,500
General Rubber Co.....	76,900	13,200	16,900	.....	=107,000
New York Commercial Co. ....	.....	7,600	59,600	8,000	= 75,200
A. T. Morse & Co.....	25,500	7,000	14,500	.....	= 47,000
Hagemeyer & Brunn....	16,800	300	2,600	.....	= 19,700
G. Amsinck & Co.....	7,100	400	2,000	700	= 10,200
Total	286,600	47,100	137,100	13,800	=484,600

DECEMBER 5.—By the steamer *Pancras*, from Manáos and Pará:

Poel & Arnold.....	135,800	50,200	92,000	25,300=303,300
New York Commercial Co.	66,100	1,400	70,500	14,400=152,400
General Rubber Co.....	58,200	15,000	15,900	.....= 89,100
Hagemeyer & Brunn....	22,500	300	7,300	.....= 30,100
De Lagotellerie & Co....	11,100	1,100	1,300	.....= 13,500
Total	293,700	68,000	187,000	39,700=588,400

DECEMBER 15.—By the steamer *Brasil*, from Manáos and Pará:

Poel & Arnold.....	310,600	98,400	210,100	28,600= 647,700
New York Commercial Co..	170,900	15,000	39,500	10,900= 236,300
General Rubber Co.....	91,800	15,500	16,000	3,300= 126,600
A. T. Morse & Co.....	69,100	5,700	36,800	.....= 111,600
Hagemeyer & Brunn....	26,800	1,000	6,000	.....= 33,800
De Lagotellerie & Co....	10,700	2,200	4,600	.....= 17,500
G. Amsinck & Co.	4,300	300	6,600	.....= 11,200
Total	684,200	138,100	319,600	42,800=1,184,700

DECEMBER 21.—By the steamer *Minas Geraes*, from Pará:

Poel & Arnold.....	76,000	18,900	99,100	.....= 194,000
De Lagotellerie & Co.....	82,700	12,600	17,600	.....= 112,900
New York Commercial Co..	5,400	1,600	36,100	11,600= 54,700
Hagemeyer & Brunn....	18,600	.....	3,900	.....= 22,500
A. T. Morse & Co.....	.....	.....	21,800	.....= 21,800
Total	182,700	33,100	178,500	11,600= 405,900

DECEMBER 23.—By the steamer *Clement*, from Manáos and Pará:

Poel & Arnold.....	338,800	88,300	125,700	14,700= 567,500
New York Commercial Co..	115,400	40,500	20,200	4,800= 180,900
A. T. Morse & Co.....	82,900	20,600	24,300	.....= 127,800
General Rubber Co.....	68,500	14,400	28,000	10,800= 121,700
Henderson & Korn.....	6,400	.....	.....	.....= 6,400
Total	612,000	163,800	198,200	30,300=1,004,300

PARA RUBBER VIA EUROPE.

		POUNDS.	
NOVEMBER 1.—By the <i>Lusitania</i> —Liverpool:			
N. Y. Commercial Co. (Fine).....	56,000		
Poel & Arnold (Fine).....	7,000		
Muller Schall & Co. (Coarse).....	7,000		
In Transit (Fine).....	22,500	92,500	
NOVEMBER 15.—By the <i>Adriatic</i> —Liverpool:			
Robinson & Co. (Fine).....	11,000		
NOVEMBER 16.—By the <i>Pennsylvania</i> —Hamburg:			
Henderson & Korn (Coarse).....	20,000		
DECEMBER 1.—By the <i>Patricia</i> —Hamburg:			
N. Y. Commercial Co. (Coarse).....	30,000		
DECEMBER 4.—By the <i>Compagnie</i> —Liverpool:			
General Rubber Co. (Fine)....	5,500		
N. Y. Commercial Co.	7,000	12,500	
DECEMBER 5.—By the <i>Kaiserin Auguste Victoria</i> —Hamburg:			
A. T. Morse & Co. (Coarse)....	60,000		
Rubber Trading Co. (Fine).....	7,000		
Robert Badenhop (Coarse).....	10,000	77,000	
DECEMBER 7.—By the <i>Migdalena</i> —Molteno:			
A. T. Morse & Co. (Fine).....	10,000		
A. T. Morse & Co. (Cauchó)....	30,000	40,000	
DECEMBER 8.—By the <i>Olympic</i> —London:			
Poel & Arnold (Coarse).....	45,000		
DECEMBER 11.—By the <i>New York</i> —London:			
Poel & Arnold (Coarse).....	56,000		
DECEMBER 12.—By the <i>Carmania</i> —Liverpool:			
N. Y. Commercial Co. (Fine)..	136,000		
Poel & Arnold (Fine).....	22,500		
Raw Products Co. (Fine).....	11,500		
J. H. Rossbach & Bros.	7,000		
Robinson & Co. (Fine).....	5,000		
General Rubber Co. (Coarse)...	4,500		
Raw Products Co. (Coarse)....	5,500		
In Transit (Fine).....	22,500	214,500	
DECEMBER 14.—By the <i>President Lincoln</i> —Hamburg:			
N. Y. Commercial Co. (Fine)..	20,000		
Poel & Arnold (Fine).....	45,000		
Henderson & Korn (Fine).....	8,000		
Wallace L. Gough Co. (Fine)....	9,000		
A. T. Morse & Co. (Coarse)....	25,000		
Robert Badenhop (Coarse)....	5,000	112,000	
DECEMBER 21.—By the <i>Philadelphia</i> —London:			
N. Y. Commercial Co. (Coarse)	22,500		
Poel & Arnold (Coarse).....	8,000	30,500	

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

		POUNDS.	
NOVEMBER 24.—By the <i>Morro Castle</i> =Vera Cruz:			
E. Nelson Tibbals & Co.....	2,500		
General Export Comm. Co.....	2,500		
H. Marquardt & Co.....	1,500	6,500	
NOVEMBER 24.—By the <i>Colon</i> =Colon:			
G. Amsinck & Co.....	7,000		
E. Nelson Tibbals & Co.....	6,500		
H. Feltman & Co.....	3,500		
Piza, Nephews & Co.....	3,000		
Lanman & Kemp.....	2,000		
United Export Co.....	1,000		
Mecke & Co.....	1,000		
Suzarte & Whitney.....	1,000		
Wessels, Kulenkampf & Co.....	1,000		
Brandon & Bros.....	1,000	27,000	
NOVEMBER 27.—By the <i>Chinese Prince</i> =Bahia:			
J. H. Rossbach & Bros.....	50,000		
Adolph Hirsch & Co.....	40,000	90,000	
NOVEMBER 29.—By the <i>Prinz August Wilhelm</i> =Colon:			
G. Amsinck & Co.....	20,000		
N. Y. Commercial Co.....	4,500		
J. H. Rossbach & Bros.....	2,000		
J. Sambrada & Co.....	2,000		
Mecke & Co.....	1,500		
Caballero & Blanco.....	1,500		
Gillespie Bros. & Co.....	1,000	32,500	
DECEMBER 1.—By the <i>El Dia</i> =Galveston:			
Continental-Mexican Rubber Co.....	*110,000		
Charles T. Wilson.....	*7,000	*117,000	
DECEMBER 1.—By the <i>Minneapolis</i> =London:			
Adolph Hirsch & Co.....		33,500	
DECEMBER 1.—By the <i>Santiago</i> =Tampico:			
Ed. Maurer.....	*100,000		
Continental-Mexican Rubber Co.....	*77,000	*177,000	
DECEMBER 1.—By the <i>Proteus</i> =New Orleans:			
G. Amsinck & Co.....	5,000		
A. N. Rotholz.....	5,000		

A. T. Morse & Co.	2,500		
Robinson & Co.	2,500		
George A. Alden & Co.	1,500	16,500	
DECEMBER 1.—By the <i>Monterey</i> =Frontera:			
Harburger & Stack.	3,000		
P. Storer & Co.	2,500		
Lawrence Import Co.	2,000		
J. W. Wilson & Co.	2,000	9,500	
DECEMBER 4.—By the <i>Bordeaux</i> =Havre:			
In Transit.	13,500		
DECEMBER 4.—By the <i>El Sol</i> =Galveston:			
Continental Mexican Rubber Co. *	68,000		
Charles T. Wilson.	*18,000	*86,000	
DECEMBER 4.—By the <i>Capitan</i> =Liverpool:			
New York Commercial Co.	*11,500		
DECEMBER 4.—By the <i>Prinz Eitel Friedrich</i> =Colon:			
G. Amsinck & Co.	20,000		
Andean Trading Co.	2,000		
Hawes, Willard & Co.	2,000		
Wessels, Kulenkampff & Co.	1,000	25,000	
DECEMBER 6.—By the <i>Zeeland</i> =Antwerp:			
New York Commercial Co.	*190,000		
DECEMBER 7.—By the <i>El Occidente</i> =Galveston:			
Continental Mexican Rubber Co. *	90,000		
In Transit.	*15,000	*105,000	
DECEMBER 8.—By the <i>Morro</i> =Frontera:			
Harburger & Stack.	5,500		
A. Klipstein & Co.	4,500		
Silva, Bussenius & Co.	2,500		
W. L. Wadleigh.	1,000	13,500	
DECEMBER 9.—By the <i>Panama</i> =Colon:			
Isaac Brandon & Bros.	21,000		
E. Nelson Tibbals & Co.	12,000		
G. Amsinck & Co.	4,500		
Dumarest Bros. & Co.	2,000		
Hondo Rubber Estates Co.	2,000		
Graham, Hinkley & Co.	1,500		
Pablo, Calvert & Co.	1,500		
H. Feltman & Co.	1,000		
Lanman & Kemp.	1,000		
P. Ebling & Co.	1,000	47,500	
DECEMBER 11.—By the <i>Guantanamo</i> =Tampico:			
New York Commercial Co.	*145,000		
Ed. Maurer.	*80,000		
American Trading Co.	*20,000		
For Europe.	*70,000	*315,000	
DECEMBER 12.—By the <i>Albion</i> =Colombia:			
G. Amsinck & Co.	3,000		
American Trading Co.	2,500		
Schutte, Bunemann & Co.	1,000		
J. A. Pauli & Co.	1,000		
R. Gallego & Co.	1,000	8,500	
DECEMBER 14.—By the <i>Morus</i> =New Orleans:			
A. T. Morse & Co.	4,500		
Manhattan Rubber Mfg. Co.	3,500		
Robinson & Co.	2,500		
G. Amsinck & Co.	2,000	12,500	
DECEMBER 16.—By the <i>Esperanza</i> =Vera Cruz:			
Rubber Trading Co.	5,500		
L. Lunde & Co.	1,500		
Harburger & Stack.	1,000		
In Transit.	1,000	9,000	
DECEMBER 16.—By the <i>California</i> =Liverpool:			
Henderson & Korn.	13,500		
DECEMBER 18.—By the <i>Prinz Sigismund</i> =Colon:			
G. Amsinck & Co.	27,000		
Pablo, Calvert & Co.	1,500		
Mecke & Co.	1,500		
Maitland, Coppell & Co.	1,000		
J. J. Julia & Co.	1,000	32,000	
DECEMBER 18.—By the <i>Yumuri</i> =Tampico:			
New York Commercial Co.	*67,000		
For Europe.	*80,000	*147,000	
DECEMBER 20.—By the <i>El Oriente</i> =Galveston:			
Continental-Mexican Rubber Co. *	125,000		
Charles T. Wilson.	*6,500	*131,500	
DECEMBER 20.—By the <i>Orotava</i> =Colombia:			
G. Amsinck & Co.	7,500		
Maitland, Coppell & Co.	7,000		
J. Sambrada & Co.	4,500		
A. Helde.	3,000		
Caballero & Blanco.	2,000		
Ab. M. Capen's Sons.	2,000		
Gillespie Bros. & Co.	1,500		
Honduras Rubber Estates Co.	1,000		
Schulz & Ruckgaber.	1,000	29,500	
DECEMBER 22.—By the <i>Alleghany</i> =Costa Rica:			
G. Amsinck & Co.	7,000		
R. Castillo & Co.	3,500		
Frank Lapidra.	2,000		
Gillespie Bros. & Co.	2,000		
Isaac Brandon & Bros.	2,000		
A. Helde.	1,500	18,000	

DECEMBER 23.—By the <i>Morro Castle</i> =Vera Cruz:	
North American Trading Co.	10,000
Harburger & Stack.	5,500
A. T. Morse & Co.	4,500
Lawrence Import Co.	2,500
George A. Alden & Co.	2,500
Maitland, Coppell & Co.	2,500
For Europe.	7,000
	34,500

AFRICAN.

		POUNDS.	
NOVEMBER 24.—By the <i>Mexico</i> =Havre:			
Ed. Maurer	33,500		
A. T. Morse & Co.	3,500	37,000	
NOVEMBER 24.—By the <i>Lusitania</i> =Liverpool:			
George A. Alden & Co.		7,000	
NOVEMBER 27.—By the <i>Adriatic</i> =Liverpool:			
General Rubber Co.		11,500	
NOVEMBER 27.—By the <i>Pennsylvania</i> =Hamburg:			
Wallace L. Gough Co.	56,000		
Poel & Arnold.	40,000		
Rubber Trading Co.	15,000		
George A. Alden & Co.	13,500		
Robert Badenhop	9,000		
A. T. Morse & Co.	9,000		
Muller Schall & Co.	7,000	149,500	
NOVEMBER 28.—By the <i>Cymric</i> =Liverpool:			
General Rubber Co.	34,000		
Poel & Arnold	22,500		
Wallace L. Gough Co.	9,000	65,500	
DECEMBER 1.—By the <i>Minneapolis</i> =London:			
Muller Schall & Co.		11,500	
DECEMBER 1.—By the <i>Nordhavet</i> =Lisbon:			
General Rubber Co.	45,000		
George A. Alden & Co.	11,000	56,000	
DECEMBER 1.—By the <i>Patricia</i> =Hamburg:			
George A. Alden & Co.	22,500		
A. T. Morse & Co.	11,000		
Robert Badenhop	11,500		
Rubber Trading Co.	22,000		
Henderson & Korn.	7,000		
Wallace L. Gough Co.	7,500		
Ed. Maurer	4,500	86,000	
DECEMBER 2.—By the <i>Finland</i> =Antwerp:			
A. T. Morse & Co.	11,500		
Robert Badenhop	11,000	22,500	
DECEMBER 2.—By the <i>Cedric</i> =Liverpool:			
Wallace L. Gough Co.	22,500		
James T. Johnstone.	9,000		
Robinson & Co.	4,500	36,000	
DECEMBER 4.—By the <i>Bordeaux</i> =Havre:			
Poel & Arnold.	15,000		
Muller Schall & Co.	11,500	26,500	
DECEMBER 4.—By the <i>Campania</i> =Liverpool:			
General Rubber Co.	22,500		
George A. Alden & Co.	13,500		
Poel & Arnold.	3,500	39,500	
DECEMBER 5.—By the <i>Kaiserin Auguste Victoria</i> =Hamburg:			
George A. Alden & Co.	40,000		
A. T. Morse & Co.	20,000		
Ed. Maurer	25,000		
Wallace L. Gough Co.	18,000		
Robert Badenhop	11,500		
Rubber Trading Co.	7,000		
Henderson & Korn.	4,500		
Muller Schall & Co.	3,500	129,500	
DECEMBER 5.—By the <i>Minnetonka</i> =London:			
George A. Alden & Co.	11,500		
Poel & Arnold.	5,500		
Henderson & Korn.	2,500	19,500	
DECEMBER 6.—By the <i>Chicago</i> =Havre:			
Poel & Arnold.	22,500		
General Rubber Co.	34,000	56,500	
DECEMBER 6.—By the <i>Zeeland</i> =Antwerp:			
A. T. Morse & Co.	18,000		
Muller Schall & Co.	15,000		
Rubber Trading Co.	3,000	36,000	
DECEMBER 8.—By the <i>Olympic</i> =London:			
Rubber Trading Co.		9,000	
DECEMBER 11.—By the <i>New York</i> =London:			
General Rubber Co.	56,000		
Muller Schall & Co.	8,000	64,000	
DECEMBER 12.—By the <i>Carmania</i> =Liverpool:			
General Rubber Co.	30,000		
Ed. Maurer	15,000		
George A. Alden & Co.	7,000		
Poel & Arnold.	5,500	57,500	
DECEMBER 12.—By the <i>Laplant</i> =Antwerp:			
General Rubber Co.	85,000		
George A. Alden & Co.	40,000		
Poel & Arnold.	75,000		
A. T. Morse & Co.	13,500		
Muller Schall & Co.	4,500		
Raw Products Co.	3,500	221,500	

DECEMBER 14.—By the <i>Oceanic</i> =London:		
General Rubber Co.	90,000	
DECEMBER 14.—By the <i>President Lincoln</i> =Hamburg:		
Poel & Arnold.	40,000	
George A. Alden & Co.	22,500	
General Rubber Co.	11,500	
Wallace L. Gough Co.	16,000	
Robert Badenhop	5,500	
Rubber Trading Co.	9,000	104,500

DECEMBER 16.—By the <i>Laurentic</i> =Liverpool:		
George A. Alden & Co.	18,000	
James T. Johnstone.	11,500	
Poel & Arnold.	11,000	
Raw Products Co.	7,000	47,500

DECEMBER 19.—By the <i>Minnewaska</i> =London:		
Poel & Arnold.	16,000	
George A. Alden & Co.	15,000	
Henderson & Korn.	20,000	
Raw Products Co.	3,500	54,500

DECEMBER 21.—By the <i>Kroonland</i> =Antwerp:		
Poel & Arnold.	11,500	
Henderson & Korn.	7,000	
A. T. Morse & Co.	3,500	22,000

DECEMBER 22.—By the <i>Amerika</i> =Hamburg:		
Poel & Arnold.	22,500	
George A. Alden & Co.	11,000	
Wallace L. Gough Co.	13,500	
Robert Badenhop	7,000	54,000

EAST INDIAN.

[*Denotes Plantation Rubber.]

NOVEMBER 24.—By the <i>Lusitania</i> =Liverpool:		
Ed. Maurer	*22,500	
William H. Stiles.	*10,000	*22,500

NOVEMBER 28.—By the <i>Aymeric</i> =Colombo:		
A. T. Morse & Co.	*70,000	
New York Commercial Co.	*20,000	
Poel & Arnold.	*3,500	*93,500

DECEMBER 1.—By the <i>Minneapolis</i> =London:		
General Rubber Co.	*80,000	
Poel & Arnold.	*25,000	
A. T. Morse & Co.	*15,000	
Henderson & Korn.	*20,000	*140,000

DECEMBER 1.—By the <i>St. Louis</i> =London:		
New York Commercial Co.	*25,000	
Poel & Arnold.	*40,000	
L. Littlejohn & Co.	*11,000	
In Transit	*22,500	
Poel & Arnold.	8,000	106,500

DECEMBER 1.—By the <i>Patricia</i> =Hamburg:		
Rubber Trading Co.		8,000

DECEMBER 2.—By the <i>Finland</i> =Antwerp:		
A. T. Morse & Co.	*11,500	

DECEMBER 4.—By the <i>Campania</i> =Liverpool:		
Ed. Maurer	*15,000	
Henderson & Korn.	*11,500	*26,500

DECEMBER 4.—By the <i>Roseric</i> =Singapore:		
Ed. Maurer	*27,000	
L. Littlejohn & Co.	*17,500	
New York Commercial Co.	*7,000	
Wallace L. Gough Co.	*9,000	
Heabler & Co.	*9,000	
A. W. Brunn.	*5,000	
L. Littlejohn & Co.	20,000	
Ed. Maurer	9,000	
Heabler & Co.	9,000	
Wallace L. Gough Co.	4,500	116,000

DECEMBER 5.—By the <i>Minnetonka</i> =London:		
Poel & Arnold.	*45,000	
Ed. Maurer	*11,500	
A. T. Morse & Co.	*11,500	
Henderson & Korn.	*11,000	

General Rubber Co.	*56,000	
In Transit	*22,500	
Raw Products Co.	11,500	169,000

DECEMBER 6.—By the <i>Zeeland</i> =Antwerp:		
A. T. Morse & Co.	*20,000	
Muller Schall & Co.	*3,500	*23,500

DECEMBER 8.—By the <i>Olympia</i> =London:		
Poel & Arnold.	*25,000	
Poel & Arnold.	34,000	*59,000

DECEMBER 11.—By the <i>New York</i> =London:		
New York Commercial Co.	*22,500	
Poel & Arnold.	*10,000	
Ed. Maurer	*9,000	*41,500

DECEMBER 11.—By the <i>Neuenfels</i> =Colombo:		
A. T. Morse & Co.	*50,000	
New York Commercial Co.	*25,000	*75,000

DECEMBER 12.—By the <i>Minnehaha</i> =London:		
General Rubber Co.	*22,500	
Poel & Arnold.	*13,500	
A. T. Morse & Co.	*5,000	
L. Littlejohn & Co.	*7,000	*48,000

DECEMBER 14.—By the <i>Oceanic</i> =London:		
New York Commercial Co.	*56,000	
Ed. Maurer	*50,000	*106,000

DECEMBER 14.—By the <i>President Lincoln</i> =Hamburg:		
Wallace L. Gough Co.	*9,000	

DECEMBER 18.—By the <i>Satsuma</i> =Singapore:		
New York Commercial Co.	*19,000	
L. Littlejohn & Co.	*11,500	
Heabler & Co.	*5,500	
L. Littlejohn & Co.	22,500	
Otto Isenstein & Co.	11,000	
Poel & Arnold.	11,500	
Heabler & Co.	22,500	
Manhattan Rubber Mfg. Co.	15,000	*118,500

DECEMBER 19.—By the <i>Minnewaska</i> =London:		
General Rubber Co.	*150,000	
Henderson & Korn.	*55,000	
New York Commercial Co.	*25,000	
Robinson & Co.	*13,500	
Poel & Arnold.	*13,500	
Ed. Maurer	*7,000	
A. T. Morse & Co.	*7,000	
L. Littlejohn & Co.	*8,000	
Charles T. Wilson.	*7,000	
Poel & Arnold.	5,000	291,000

DECEMBER 21.—By the <i>Kroonland</i> =Antwerp:		
A. T. Morse & Co.	*45,000	

DECEMBER 21.—By the <i>Philadelphia</i> =London:		
New York Commercial Co.	*40,000	
Ed. Maurer	*13,500	
Poel & Arnold.	*11,500	
Henderson & Korn.	*5,000	*70,000

DECEMBER 22.—By the <i>Welsh Prince</i> =Singapore:		
New York Commercial Co.	*20,000	
Ed. Maurer	*20,000	
L. Littlejohn & Co.	*7,000	
Wallace L. Gough Co.	*5,500	
Manhattan Rubber Mfg. Co.	*35,000	*87,500

DECEMBER 23.—By the <i>Netherby Hall</i> =Colombo:		
A. T. Morse & Co.	*13,500	
Thomson & Co.	*2,500	*16,000

GUTTA-JELUTONG.

DECEMBER 4.—By the <i>Roseric</i> =Singapore:		
L. Littlejohn & Co.	1,000,000	
Wallace L. Gough Co.	600,000	
Heabler & Co.	1,300,000	
George A. Alden & Co.	235,000	
Poel & Arnold.	135,000	
Robinson & Co.	110,000	3,380,000

DECEMBER 6.—By the <i>Chicago</i> =Havre:		
L. Littlejohn & Co.		220,000

DECEMBER 14.—By the <i>President Lincoln</i> =Hamburg:		
George A. Alden & Co.		85,000

DECEMBER 18.—By the <i>Satsuma</i> =Singapore:		
L. Littlejohn & Co.	300,000	
Heabler & Co.	200,000	
Wallace L. Gough Co.	200,000	
George A. Alden & Co.	110,000	
Poel & Arnold.	55,000	
A. W. Brunn.	55,000	920,000

DECEMBER 22.—By the <i>Welsh Prince</i> =Singapore:		
Heabler & Co.	135,000	
Wallace L. Gough Co.	80,000	
L. Littlejohn & Co.	250,000	
A. W. Brunn.	55,000	520,000

GUTTA-PERCHA.

DECEMBER 5.—By the <i>Kaiserin Auguste Victoria</i> =Hamburg:		
Robert Soltau & Co.		20,000

DECEMBER 22.—By the <i>Welsh Prince</i> =Singapore:		
L. Littlejohn & Co.		45,000

BALATA.

NOVEMBER 29.—By the <i>Saramaca</i> =Bolivar:		
G. Amsinck & Co.	34,000	
George A. Alden & Co.	22,500	
Iglesia Lobo & Co.	5,500	
Schutte, Bunemann & Co.	5,500	
Middleton & Co.	3,000	70,500

DECEMBER 1.—By the <i>Guiana</i> =Demerara:		
Ed. Maurer		25,000

DECEMBER 5.—By the <i>Minnetonka</i> =London:		
R. & J. Dick, Limited.		9,000

DECEMBER 6.—By the <i>Marouijne</i> =Trinidad:		
Iglesia Lobo & Co.	5,500	
Kunhardt & Co.	2,500	
Middleton & Co.	2,500	10,500

DECEMBER 13.—By the <i>Coppename</i> =Demerara:		
Ed. Maurer	11,500	
Middleton & Co.	11,000	22,500

DECEMBER 18.—By the <i>Parina</i> =Demerara:		
Ed. Maurer	11,500	
Middleton & Co.	4,500	16,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—NOVEMBER.

Imports:	Pounds.	Value.
India-rubber	7,631,102	\$5,973,517
Balata	244,470	145,216
Guayule	656,184	287,519
Gutta-percha	130,669	31,928
Gutta-jelutong (Pontianak)	742,152	34,175
Total	9,404,577	\$6,472,355

Exports:	Pounds.	Value.
India-rubber	78,283	\$72,252
Balata	10,370	5,893
Guayule	2,112	1,261
Gutta-percha		
Reclaimed rubber	38,297	10,276
Rubber scrap, imported...	774,061	\$63,607
Rubber scrap, exported...	342,198	43,941

BOSTON ARRIVALS.

	Pounds.
NOVEMBER 10.—By the <i>Katuna</i> =Singapore:	
Wallace L. Gough Co (Jelutong)	22,500
NOVEMBER 23.—By the <i>Ivernia</i> =Liverpool:	
Poel & Arnold (African)	11,300
NOVEMBER 29.—By the <i>Roseric</i> =Singapore:	
State Rubber Co. (East Indian)	*4,500
State Rubber Co. (Jelutong)	449,000
L. Littlejohn & Co. (Gutta-percha)	33,500
L. Littlejohn & Co. (Jelutong)	167,000 654,000

PARA EXPORTS OF INDIA RUBBER, OCTOBER, 1911 (IN KILOGRAMS).

NEW YORK.					EUROPE.					TOTAL.	
EXPORTERS—	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Gruner & Co.	262,814	40,788	176,450	37,196	517,248	210,768	19,777	37,424	16,829	284,798	802,046
Gordon & Co.	110,330	12,580	96,690	2,970	222,570	48,894	4,105	1,596	17,870	72,465	295,035
Ad. H. Alden, Limited.	55,922	7,116	45,082	330	108,450	89,606	6,366	21,656	5,280	122,908	231,358
Suarez Hermanos & Co., Limited.						64,113	2,690	9,981	27,013	103,797	103,797
De Lagotellerie & Co.	71,570	5,610	22,770		99,950						99,950
R. O. Ahlers & Co.						50,091	320	8,284	7,029	65,724	65,724
Pires, Teixeira & Co.	17,340	680	6,600		24,620	19,720		4,290		24,010	48,630
Nunes Sobrinho & Co.	27,370	1,020	5,280		33,670	5,100	170			5,270	38,940
Sundries	4,760		4,950		9,710						9,710
Itacoatiara, direct						900	150	998		2,048	2,048
Manaos, direct	432,286	97,934	92,451	17,681	640,352	320,759	99,348	48,558	22,929	491,594	1,131,946
Total, October, 1911.	982,392	165,728	450,273	58,177	1,656,570	809,951	132,926	132,787	96,950	1,172,614	2,829,184
Total, September, 1911.	927,165	175,126	397,339	47,649	1,547,279	632,419	83,374	134,609	160,389	1,010,791	2,558,070
Total, August, 1911.	419,044	110,293	376,797	115,523	1,021,857	638,349	65,625	162,053	32,223	1,188,250	2,210,107
Total, July, 1911.	294,212	62,865	347,130	214,267	918,474	599,843	96,127	103,983	335,317	1,135,270	2,053,744



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JANUARY 1, 1912.

No. 3.

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Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to November 20, 1910 and 1911. Compiled by the Ceylon Chamber of Commerce.]

	1910.	1911.
To Great Britain	1,332,477 pounds	2,811,151
To United States.....	1,335,308	1,568,339
To Belgium.....	39,993	641,783
To Japan.....	1,480	49,308
To Germany.....	12,184	44,338
To Australia.....	4,604	38,865
To Canada.....	7,476	13,830
To Holland.....		12,893
To Italy	1,909	8,460
To Straits Settlements		3,216
To Austria.....		3,088
To India.....		196
To France.....		117
To Africa.....		35
Total	2,735,431	5,195,619
[Same period 1909, 1,139,702 pounds; same 1908, 679,224.]		

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

From—	1909.	1910.	1911.
Singapore (to October 29) ..pounds	2,068,008	2,980,439	5,291,205
Penang (to October 15)	1,810,013	1,826,149	3,828,656
Port Swettenham (to August 31) ..	5,410,735	7,488,322	
Total	3,878,021	10,217,323	16,608,183

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are unchanged:

	January 1, 1912.
Old rubber boots and shoes—domestic.....	9¼@ 9½
Old rubber boots and shoes—foreign.....	9½@ 9¾
Pneumatic bicycle tires.....	4½@ 4¾
Automobile tires	8¼@ 8½
Solid rubber wagon and carriage tires.....	9¼@ 9¾
White trimmed rubber	11 @11½
Heavy black rubber.....	4¾@ 5
Air brake hose	4½@ 4¾
Garden hose	1¼@ 1½
Fire and large hose.....	2 @ 2¼
Matting	7½@ 1

UNITED STATES RUBBER CO. IN SUMATRA.

The following paragraph relative to the plantation enterprise of the United States Rubber Co. in the Middle East appeared in a recent issue of "The Malay Mail," and is credited to a New York source. It states "that with the recent purchase of 70,000 acres of land from the New Asahan Tobacco Co., the United States Rubber Co., through its subsidiary the General Rubber Co., has acquired 83,000 acres of land in Sumatra. Prior to this last purchase the rubber company secured two parcels of land of 10,000 and 3,000 acres respectively. On the latter a large number of rubber trees have already been planted. The purchase from the New Asahan Tobacco Co. is regarded by the management of the rubber company as particularly valuable. It is authoritatively stated that when these 83,000 acres are producing, the United States Rubber Co. will be in an independent position with respect to the crude product. In buying these lands in the Far East no effort has been made to control the crude rubber supply. The only idea has been to strengthen the position of the United States Co., particularly during periods of extreme fluctuation, such as have prevailed in the trade for some time."

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FEBRUARY 1, 1912.

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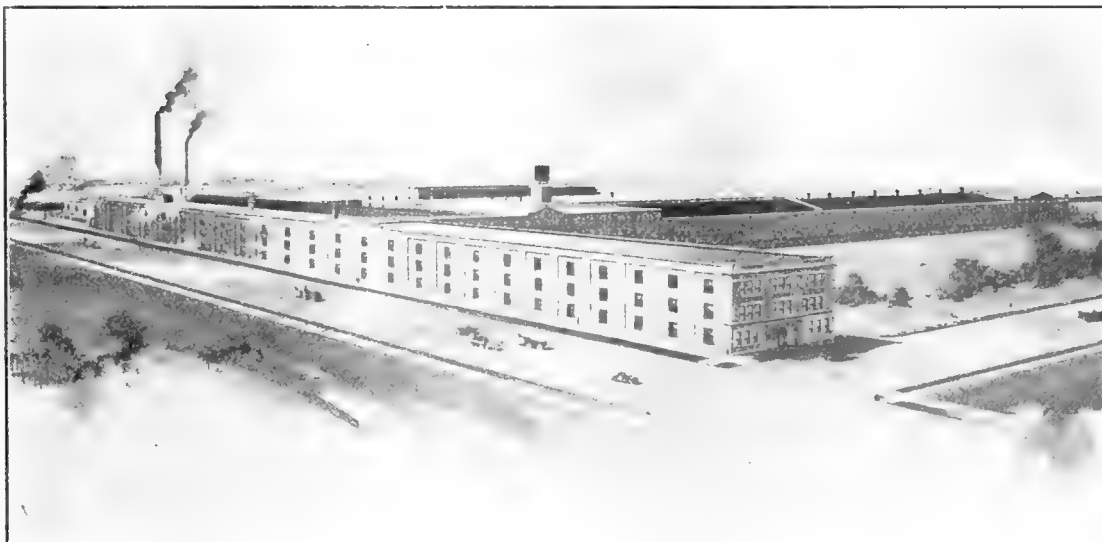
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RUBBER AND THE WEST INDIAN CONFERENCE.

THAT rubber planting should prove itself in the Middle East through a tree that was essentially South American, has always been somewhat anomalous. The logical place for its beginnings, and indeed its first successes, should have been in the great and fertile countries "next door" to Brazil, where climate, labor, and law are just as favorable as in the British possessions. For a variety of reasons the Guianas and the fertile tropical islands of the Caribbean did not grasp their opportunity, and it passed—for a time. The West India Conference, however, would seem to show on the part of governments and planters a belief that there was still an excellent chance for rubber planting, and that the lost ground might be regained. There was a notable gathering of agricultural experts, governmental officials and planters at the week's session that has just been closed in Trinidad. A wealth of information on climates, soils, cultural methods and experiments was brought out in essays, addresses and discussions. Indeed, the conference

may well be considered epochal in that it marks a definite practical resolve on the part of the West Indies to contribute their share in the development of rubber properties.

TWO ADDRESSES BEFORE THE RUBBER CLUB.

IN another part of this issue we devote several pages to a full report of two addresses delivered at the Rubber Club dinner, recently held in New York; one by the president of the club, concerning a number of matters of interest to rubber men, and the other by Congressman Weeks, on the monetary problems of the United States—a subject of importance to all classes of business men.

President Hood spoke of the desirability of increasing the club's usefulness, and as a step in that direction, of extending its membership among the important factors of the industry all over the country, so that it might become more adequately representative of the whole American rubber trade, and not wear, as at present, so distinctively an Eastern complexion. The special lines of usefulness indicated by the speaker were an organized effort to effect the standardization of the great varieties of crude rubber now offered the manufacturer, and concerted action looking to the proper adjustment of tariff regulations relating to rubber. Both of these problems are of commanding importance to the trade, and it would certainly seem that the Rubber Club of America ought to be an efficient agency for their solution. The statement that the executive committee of the club, at its December meeting, had authorized the president to appoint a committee to submit at the next annual meeting in April such revision of the constitution and by-laws as will permit the club to engage in these undertakings, is important as showing that the first step, at least, has been taken in the serious consideration of these matters.

The address of Congressman Weeks, a member of the Monetary Commission of Congress, on the monetary situation in the United States, brings into prominence again the unhappy limitations of our present system, and the urgent necessity, if American commercial life is to enjoy continued health and immunity from panics and other disorders, for a reform of some sort in our currency and banking conditions. Panics may be the time of golden opportunity to speculators who are in a position to avail themselves of the misfortunes of others, but for the business world at large they are disastrous and greatly to be deprecated.

Whether the bill reported by the Monetary Commis-

that the best possible solution, may be a proper subject for argument, but it certainly is worthy of the serious attention of every member of the business community.

PROSPECTS OF RUBBER PRODUCTION AND CONSUMPTION.

IN the various advance estimates which have been recently made of prospective conditions in 1916-1917 (when the rubber area now planted will be productive), prominence has been given in Germany to the prediction that the output of plantation rubber will by that time have reached 110,000 tons. To this amount should, of course, be added the quantity represented by wild rubber (at present about 65,000 tons) which would give a total of about 175,000 tons, or over twice the present production.

Consumption, based on a German estimate of a yearly increase of 10 per cent., will by 1916 have only reached about 110,000 tons so that there would apparently be at that time a surplus of 65,000 tons to be taken care of. It is, however, assumed that a consequent fall in value would lead to a considerable increase of demand, and that rubber would be used for purposes from which its price and fluctuations have hitherto excluded it.

INCREASED MALAYA RUBBER EXPORTS A REALITY.

THAT the increase in Malayan rubber exports is proceeding with "leaps and bounds" is further illustrated by the official report of the Imperial German Consul at Singapore, dealing with the first six months of the year just past.

During that period the total Malayan shipments had amounted to 8,349,397 pounds, as compared with 5,276,791 pounds during the first half of 1910. That the increase during the subsequent period has been to even a larger proportionate extent, is proved by the figures recorded in another column of this issue, according to which the quantity for eleven months of 1911 exceeded 19 million pounds.

In the above-named consular report, allusion is made to the opinion widely entertained in Singapore, that the rubber production in this and in the following years will not be as large as generally anticipated, many companies having failed to reach the yields estimated by their reports. From the figures of 1911 it would, however, seem that the increase of output is at present making steady progress.

RUBBER AND THE ABANDONED FARM.

WHEN Charles Goodyear gesticulated that fist-full of rubber and sulphur against the hot kitchen stove some seventy-odd years ago, he never dreamed (and he was an irrepressible dreamer) of the thousand ways in which the beneficial influences of that act would ramify. If, for instance, he had been told that fifty years after that time many of the New England farms would be abandoned because of the inability of their owners to eke out a decent living from them, and that a few years later, because of his rubber, sulphur and hot stove, many of these deserted farms would be restored and retenanted, he probably would have believed it, as he had an abiding faith in the vast possibilities of his discovery, but it would have been absolutely impossible for him to explain how it was going to happen.

But precisely this very thing has happened. From fifteen to twenty-five years ago a great many of the old farms scattered throughout New England and the Middle States were totally and hopelessly abandoned. The older generation born and reared on these farms had passed away and their descendants found it either impossible to extract a reasonable living from the soil, or else discovered that they could materially better their financial condition by migrating to the town or city and working in the shop, store or office. As a result, the old homesteads, untenanted and unkempt, fell into dreary decay, the generous barns gradually sagged and collapsed and the once cheerful homes gave shelter only to an occasional tramp.

The new farming of the great West, with its broad, level fertile fields, making it possible to engage in agriculture on a vast scale, with all the improved machinery, rendered it impossible for the little farm up on the stony New England hillside to survive. The man from town in his cross-country rides deplored the unhappy estate into which rural life had fallen, and saw many an abandoned spot which attracted him for its summer possibilities, but, being fifteen or twenty miles from town, as far as its practical usefulness to him was concerned, it might have been in Alaska.

Then came the automobile, made possible by its rubber tires, and the whole situation was changed. The farm a dozen miles from a railway station or twenty miles away from a thriving town, was no longer out of the world, but could be reached in an hour's time. The stony acres which had proved so poor in potatoes, and so meagre in apples, were discovered to be exceedingly rich in pure

air, sweeping view and wholesome outdoor life. The manufacturer, banker or business man of the distant town found that he could be a farmer for an hour before breakfast, and be at his desk at the accustomed hour of nine.

As a result, these abandoned spots all over the East have taken on new life; the old houses have been repaired, enlarged and made into comfortable and picturesque dwellings, and the barns have been pushed into perpendicular, or, more frequently, entirely rebuilt, and for a good part of the year at least, these spots, so recently inhabited only by the rabbit and the partridge, are now the habitation of happy and healthy humanity.

And this has been done on a vast scale all over the region of the once abandoned farms, and done solely through the elimination or, at least, the minimizing of distance by the rubber tire. The effect has been exactly as if a private railroad had been run from the nearest town to the front door of every farmhouse.

The automobile and accessory shows, held in January in Madison Square Garden and the Grand Central Palace, New York, were signally successful whether viewed from the standpoint of the exhibitor or the spectator. The exhibits were comprehensive and well displayed, the attendance large, and the general interest most gratifying. The auto-car, both for pleasure and for commercial use, has now become such a recognized feature in modern life that its use is bound to increase with every year for a long time to come—which means more tires (doubtless the output in 1912 will reach close to 4,000,000 tires) and more work for rubber manufacturers and rubber planters and gatherers.

THE DAY OF PLASTIC MASSES.

IF the Napoleonic saying, that "the art of governing is rooted in the ability to surprise" is true, then modern chemistry makes a strong bid to rule our destinies.

Habitually we endow the alchemist with uncanny power, yet it must be admitted that his successor, the chemist of today, has performed greater magic. He has stripped such terms as indigo, vanilla, musk, and even silk of the mystery of their creation, and by his hand the common, everyday substances around us, yield commodities hitherto exotic and rare. Who, in the days of our boyhood, would have pinned his career to such an article as coal-tar? And yet, of only one coal-tar product, synthetic indigo, Germany manufactured \$14,500,000 worth in 1910.

Then, too, one must admire the genius that called forth from the air those nitrogen-compounds, all important for agriculture, and upon the existence of which cheap food depends. If, as experts hold, the Chilian nitre beds will give out within 30 years, where would such countries as the United States, which annually consumes nitre to the value of \$15,000,000, and Germany, which consumes \$34,000,000 worth, get their nitrate. That question has been answered—"From the air!" Now we know that the whole German demand could be met from the volume of air which overlies two acres of land.

There is now 180,000 h. p. electrolytically employed in

Norway alone for this purpose. From their works in Notodden and Rjukanfos Falls the Badische Company and their partners will supply nearly half the demands of Germany. They have built a new town, Saaheim, to harbor 10,000 to 12,000 people, and their turbines are driven by water, falling from a height of 1,050 feet through ten big flumes, built side by side, like giant organ pipes, on the front of the precipice. The history of these achievements is closely interwoven with the position held by india rubber in modern industrial development.

In the group of artificial plastic masses, celluloid, the pioneer, still holds its own with unabated strength, after an existence of about 35 years, though for some uses rivaled in commercial importance by acetylcellulose, now prominent as the raw material for photographic films used in the moving picture trade. As the daily output of the plain films from both materials exceeds 300,000 yards, or 90,000,000 per annum, this article alone, at 10 cents per yard, represents \$9,000,000. In other applications acetylcellulose supplants ivory, amber, and horn, and is used in the industry of prepared papers, for wax cloth and waterproofing, for coating cotton threads, as an insulation for thin copper wires, where it surpasses silk, for artificial silk, etc. We understand that Germany manufactures the bulk of this plastic, while our country has the largest output in films, with Germany a close second. Acetylcellulose calls for *cotton, common salt and acetate of lime* as principal raw materials. Therefore improved methods should lower the cost, which is still about two and one-half times that of celluloid.

The artificial silk industry, with an annual output of 5,000 to 6,000 tons, equals 20 per cent. of the natural silk. A number of different plastics administer to its demands.

Viscose, likewise worked into filaments for textiles, occupies a position apart, and is also used for horn imitations and notions.

Galalith, the product of casein and formaldehyde, belongs again to another class.

The youngest member in the family of plastics is *bakelite*, having stepped into a position of assured importance within the comparatively short period of three years. These substances and a number of others, are daily met in a variety of uses, sometimes supplanting one another, and frequently taking the place of hard rubber. They are not substitutes; they stand individual and alone, and often perform a certain function specifically and better than anything else could. They affect portions of the rubber trade in varying degrees, beneficially, where a more far-reaching technical effect is attained by them.

Thus the new high voltage insulators have made it possible to transmit the current over 100 or 200 miles, thereby creating a demand in distributing appliances of low voltage, which otherwise never would have come into existence. Beneficial also is the appearance in the market of new articles and notions, to which the modern plastics through their special adaptability have given rise; for the rubber manufacturer, having the customers, and being already in possession of the market, forms the most natural channel for the supply of these goods—if he takes them up. On the other hand, these new masses, backed as they are, by an unprecedented chemical activity, and ever growing cheaper, may invade his own field, and in a measure supplant rubber.

Clearly the rubber manufacturer cannot afford to stand wholly aloof; he must concern himself more or less about the nature and uses of these new bodies. The mackintosh manufacturers accepted the shower-proof process, although it did not employ rubber, and made it profitable. Perhaps the day may come when all of the valuable plastics may be manufactured in rubber mills.

BRAZILIAN CONDITIONS.

IN view of the relative incompleteness of recent Brazilian advices, special interest attaches to the views expressed by Mr. J. Henry Hirsch, of Adolph Hirsch & Co., New York, and who was a member of the Brazilian Rubber Congress, who has lately arrived from Brazil.

Three points are specially prominent factors in the Brazilian rubber situation: The conditions affecting cost of producing rubber; the measures proposed for remedying these conditions, and the course of production itself.

For the purpose of accurate comparison, both South American and Asiatic rubber need to be brought to a common standard of agricultural, as distinguished from commercial, value. In this way the heavier expense represented by the transport of provisions, supplies and products in South America, as compared with Malaysia, would be clearly shown, thus indicating the points to which official efforts might appropriately be directed, with a view to securing economy in price, without thereby diminishing the share reverting to the original producer.

Judging from this standpoint, Mr. Hirsch is inclined to consider that out of a nominal cost of \$1.25 per pound for Para rubber, 75 cents would be represented by the carriage on supplies and products, only 50 cents being left for the planter. As these expenses in the case of Malaysian producers are upon a much lower scale, they can naturally make a profit, where the South American planter under similar price conditions would make a loss.

These conditions being thoroughly recognized by the Brazilian Federal and States governments, the question of the remedies to be applied has for some time engaged their attention, with the result that a plan was officially drawn up and ratified by the August congress of various States at Rio de Janeiro (as reported by the INDIA RUBBER WORLD in the issue of October, 1911, page 7). This plan has since been formally submitted to the Federal Congress, which dissolved at the end of last December. In common, however, with many other government measures, it was deferred, owing to the obstructive tactics of the opposition, and will be dealt with in April next, by the new Congressional body now being elected. As the disturbing factions will, it is expected, be eliminated, and the government will have a clear majority. Mr. Hirsch considers that the early adoption of the proposed reforms is assured.

As to production generally, his opinion is that any increase of the Asiatic yield will for the coming year be met by a corresponding reduction in that from Brazil. He is, moreover, inclined to think the Asiatic estimates of the more distant future will prove to have been excessive, by reason of reduced plantings and the possible appearance of disease. "What assurance is there," he asks, "that the soil will retain unimpaired in the quantity which has been assumed, the constituents necessary for the production of rubber? How are we to be sure some diseases may not in the future cause as much injury to the Asiatic rubber trees as the *Phylloxera* inflicted upon the French grape vines?"

Mr. Hirsch does not see that prices are likely to descend below present level, while various causes might lead to an advance.

The rubber gatherers in the Amazon are chiefly natives of the States of Ceara and Maranhão. Since the fall of prices in the Amazon territory, a number of them have directed their energies to other occupations, while few, if any, new recruits have gone into the rubber districts. The effect of these conditions will be seen in the diminished crops this year from the Amazon.

According to Mr. Hirsch's report, his experience of hiring Barbados laborers has been unfavorable. In April last he took 59 men from that island for his rubber estates in Bahia, but now has not one of them in his employ. The men ran away by degrees, which result proved to the satisfaction of Mr. Hirsch and his superintendent, who had found they gave a poor return for their wages.

The steamer *Verdi* by which Mr. Hirsch came, brought 1,457 bales of *Manicoba* rubber consigned to Adolph Hirsch & Co., which is understood to have been the largest individual shipment ever received of that quality.

PLANTATION VERSUS WILD RUBBER.

IN discussing the question of rubber supplies, the "Gummi-Zeitung" remarks that Brazil is no longer the sole rubber-producing country, but that other countries are working under different conditions, so that therefore Brazilian minimum prices do not affect the question. Not only is considerable progress being made in other lands (such as Africa, East India, Central and South America) in the production of natural crude rubber, but the production of plantation rubber is constantly increasing in India, Malaysia, Africa, South America, etc., and threatens to develop an appreciable competition with wild rubber.

Pure Pará rubber, it is added, is today being used on a diminished scale, and the requirements in that grade can in a few years be almost exclusively covered by plantation rubber, so that (according to German opinion) the prospects of the consumption of Brazilian wild rubber are unfavorably affected by the above facts. Plantation rubber, it is urged, competes with wild rubber, inasmuch as it costs less to produce and wild rubber can only retain a competitive position if the cost of its production is reduced. Efforts to keep up the price of wild rubber are therefore all the less likely to succeed, while the under-estimation of the future importance of plantation rubber would be a very great mistake.

There are today over 700,000 acres being cultivated with rubber, of which 450,000 acres belong to Eastern Asia and its islands. According to a report of Plantation Director Strauss at Moline (Kamerun), there are in England and the English colonies over 1,200 companies engaged in rubber planting, with a nominal capital equaling \$250,000,000.

That this competition is growing is illustrated by the fact that the shipments from the Federated Malay States for the first ten months of the last three years were: 1909, 4,831,823 lbs.; 1910, 9,824,605 lbs.; 1911, 15,443,154 lbs.

While Germany has a relatively large capital (equaling \$12,500,000) invested in rubber culture, its development is as yet too recent for notable success to have been achieved. Still, satisfaction is expressed at the fact that the German colonies already furnish an appreciable quantity of crude rubber, not only of medium qualities in wild varieties, but also in plantation rubber of Pará grades. During the year 1909 German East Africa alone exported 218 tons of plantation rubber and 255 tons of wild rubber. The German colonies in 1910 had the following acreage in rubber: German East Africa, about 41,000 acres; Kamerun, about 10,000 acres; New Guinea, about 5,500 acres; Samoa, about 2,000 acres; Togo, about 375 acres.

Of this acreage about one-sixth is in bearing. The aggregate exports from the German over-sea territory of india-rubber and gutta-percha amounted to: 1909, 2,150 tons, value \$2,875,000; the value for 1910 having been about the equivalent of \$3,750,000.

Regret is expressed at the short-sighted policy by which a number of German plantations with good prospects have been sold to English capitalists. What will happen in 1916-17 is thus discussed. "Whether, then, wild, plantation, or artificial rubber will play the principal part is only a question of price. The victory will lie with the material which gives the manufacturer the best quality at the lowest price."

MELLO BRAZILIAN RUBBER.

In explanation of the relatively unsatisfactory results of the year ended June 30 last, notwithstanding the collection of 261 tons of rubber, the directors of De Mello Brazilian Rubber Company report that it was found necessary to write off as irrecoverable a sum equaling \$244,715 from the debts owing to the company.

Coagulating by Carbonic Acid.

[Our good friend, Wilhelm Pahl, of Dortmund, Germany, sends us the following regarding the use of his new re-agent for the coagulation of the latex of the *Hevea Brasiliensis*. It will be noted that he calls plantation Pará rubber *Hevea* rubber, and the wild product Pará rubber.]

HVEEA (cultivated) rubber has gained the victory over Pará rubber. The mystery, which has up to the present day been hanging over Pará rubber, has been disclosed. The efficacious agent in coagulating Pará rubber has been discovered. Finally, it has been possible to replace the manual Pará coagulation by an *ideal mechanical coagulation*.

The science of chemistry has obtained the victory and torn the veil which had been hanging over Pará rubber. The whole rubber world and all the *Hevea* plantations have thereby gained an enormous advantage. It has been discovered that *carbonic acid* is the agent which ensures to the cultivated rubber the victory over all procedures heretofore employed.

The advantage which *Hevea* rubber now possesses, compared with Pará rubber, is best discerned by examining both methods thoroughly and by comparing their advantages. The new rubber combines the advantages of *Hevea* rubber and those of Pará rubber and shall consequently receive the name of "*Hevea-Pará*."

Science—and, first of all, chemistry—has been endeavoring for decades to discover the agent which during the process of smoking gives to the Pará rubber obtained from the *Hevea* latex its strength, elasticity and superior quality. The most distinguished men of all civilized nations participated in these researches. During 1910 Dr. Frank and Dr. Marckwald, of the Chemical Laboratory, of Dr. Henriques Succ., Berlin, devoted themselves to this question. To this end they procured a few nuts of the Urukuti palm tree used for smoking Pará rubber, submitting their smoke to a close chemical examination. They discovered all sorts of substances, but did not find the most vital agent. We propose to submit hereafter the whole procedure of smoking to an exhaustive examination.

The rubber latex having been collected in the wild forest by the *seringueiros*, should now undergo the process of the extraction of the valuable Pará rubber from the latex. With this end in view, the *seringueiro* gathers dry wood, kindles a fire and then puts some nuts of the Urukuti palm tree upon it, thus obtaining a very dense smoke. Now, it is not difficult to reply to the question, why the *seringueiro* employs the Urukuti nuts. These nuts are an excellent material for maintaining a good fire, because (1) they have an exceptionally hard shell, woodlike, thick and dry, and (2) they have rather oleaginous kernels.

It is difficult to find in a tropical wild forest dry wood, owing to the high degree of moisture in the air, and the wood having grown quickly and being soft, decomposes rapidly in many cases, which makes it a poor combustible. The palm tree nuts, however, give a perfect fire. The oil of the kernels serves to feed the fire, and it is a common experience that by burning dry and hard wood the best products of combustion are obtained. As is known, every hydrocarbon burns to carbonic acid and water. The smoke is more or less a secondary symptom and serves during the smoking process chiefly as a carrier of the carbonic acid which is drawn upward by the smoke; otherwise the carbonic acid would remain below, being heavier than air. The smoke contains also by-substances valuable for preservation, such as creosote, but this is less important than that in the present case it is the carrier of the carbonic acid.

Now it must not be lost sight of that the object of the smoke is to coagulate the latex and not, as has often been done, to smoke rubber, the coagulation of which has already been

achieved. It must further be taken into consideration that the *seringueiro* pours the latex during the smoking procedure only while it is fluid over the stick, and to this end always makes fluid again such rubber as has already coagulated previous to the smoking procedure. It is obvious that this liquid latex must coagulate instantly, as otherwise it would again flow off. All trials hitherto made with the reagents found in the smoke never had the result of coagulating the latex instantly. It is solely the carbonic acid which causes the instantaneous coagulation.



WILHELM PAHL'S RAPID COAGULATOR FOR *Hevea* LATEX BY CARBONIC ACID.

The valuable properties which distinguish the Pará rubber produced by the smoking procedure are:

1. Its elasticity ("Nerve").
2. That it keeps as carbonates the valuable metallic salts contained in the latex, and which are so very important for the consequent vulcanization.
3. That it or the serum contained in the rubber reacts alkaline.
4. That it has no tendency to turn moldy.
5. That it never rots.
6. That it never oxidizes.
7. That it contains rubber molecules of an extraordinarily high polymerization.
8. That, consequently, it vulcanizes extremely well.
9. The very great viscosity of the solution and the yielding quality resulting therefrom.

The *Hevea* rubber hitherto produced by the plantation possessed none of these valuable qualities. This is most astonishing, in view of the fact that the tree from which the latex is collected is the same as the one from which Pará rubber is obtained i. e., "*Hevea Brasiliensis*."

This "*Hevea*" has been exported from Brazil and transplanted under the same tropical condition and the same soil-qualities,

especially to the Straits Settlements, where it developed to an exceedingly flourishing plantation tree. Since this tree furnishes a highly valuable product in Brazil it must, necessarily, give the same product in its new habitation, provided that the coagulation takes place under the same conditions. Owing to the enormous size of modern plantations it was, however, absolutely impossible to introduce the manual extraction of Pará rubber in the Straits. Therefore such methods of coagulation were adopted as would make it possible to extract the rubber by machinery, but by means of which an equally valuable product can never be gained. First of all acetic acid was found to be an agent which permitted an easy mechanical extraction of a product which, however, had great defects. The most serious defects are the following ones, viz.:

1. The coagulation with acetic acid takes too much time. According to the doses which are added to the latex its coagulation requires several hours, and in many cases even a whole day. If a quick coagulation is to be obtained, very large quantities of acetic acid must be employed. Now as regards the rubber produced with the aid of acetic acid it becomes gelatinous during the coagulation process, which is to be attributed to the fact that the rubber molecules do not receive sufficient polymerization.

2. Acetic acid also does not prevent the rubber thus obtained from getting mouldy very quickly, owing to the damp hot air in the tropics.

3. The rubber has no elasticity (nerve), and in consequence is inferior.

4. A very serious drawback of coagulation with acetic acid is that the metallic salts, which are of so great importance for the vulcanization, are precipitated as acetic salts. Now, these acetic salts make the rubber soft later on when it is to be used.

5. If acetic acid is used in quantities, small crystals like sand are developed in the rubber, and these crystals are precisely the injurious acetous compositions of the otherwise valuable metallic salts of the rubber.

6. The rubber coagulated with acetic acid has but a very inferior viscosity, which is the best proof that the polymerization of the rubber is the worst imaginable.

7. Further, the subsequent vulcanization does not furnish the valuable product of the Pará rubber. From the very beginning the rubber is lacking in elasticity (nerve). If up to the present plantation rubber coagulated with acetic acid has been able to fetch about the same high price as Pará, this result can not be attributed to the excellent quality of the *Hevea* plantation rubber, but solely to the fact that the rubber is put on the market in a clean and dry state without any loss in washing. If the values of Pará rubber and *Hevea* rubber are to be compared it must be taken into consideration that Pará has 18 to 20 per cent. loss in washing (locked up serum), while plantation rubber does not sustain any loss in washing.

If they had continued to proceed with the extraction of plantation rubber in this direction (although the attempt has been made to change it by having recourse to all kinds of coagulation methods, which, however, consisted always in strong acids) then plantation *Hevea* rubber would constantly have remained in the background.

All this has been changed at one blow by the important discovery of carbonic acid as coagulation agent of the latex. For the whole plantation industry this discovery is the most important made in decades. The most remarkable part of it is the discovery that carbonic acid alone is the efficacious agent which conferred on the Pará rubber its past superiority. This discovery is very important, because plantation rubber in future produced in the simplest way imaginable by machinery is thereby so much improved that it far surpasses the wild Pará rubber in *quality, purity and strength*. In order to distinguish this new rubber from Pará rubber and the plantation *Hevea* rubber hitherto ob-

tained by strong acids, it shall be called "*Hevea Pará*," which name it well deserves. The valuable qualities realized by the use of carbonic acid are the following:

1. Carbonic acid coagulates the latex instantly. The latex is an emulsion of fluid rubber particles in conjunction with vegetable albumen. The reaction of carbonic acid on these albuminous vegetable substances is so vehement and efficacious that as a result the different rubber particles unite suddenly with the greatest vehemence, which bestows on the rubber obtained an exceedingly strong polymerization. The *Hevea* rubber thus produced possesses all the valuable qualities of Pará rubber.

2. The "*Nerve*," tensile strength and elasticity are superior to the same qualities in Pará rubber.

3. One of the chief advantages of "*Hevea Pará*" lies in the fact that the valuable metallic salts of the latex are contained in the rubber as carbonates, just as with Pará, for they had been precipitated by aid of carbonic acid.

4. "*Hevea Pará*" also is alkaline, for carbonic acid, as is well known, does not disturb the alkaline qualities.

5. "*Hevea Pará*" possesses the same viscosity and yielding quality of the solution, and vulcanized furnishes the same valuable product as Pará.

6. Coagulation by carbonic acid is the cleanest process and gives the purest and lightest product.

7. The smoke, however, mixes many coal-particles with the Pará rubber.

8. "*Hevea Pará*" never becomes mouldy, because the acid precipitates the vegetable albumen contained in the latex, and thereby destroys the whole fostering soil for these bacteria.

9. "*Hevea Pará*," just like Pará, can neither decay nor oxidize.

10. The rubber coagulated with acetic acid is quickly covered with a bluish colored coating. This is due to the fact that the albumen still contained in the rubber in spite of the acetic acid, decomposes rapidly under the influence of light and climate, partly forming phenols at the same time. The phenols give the bluish color to the rubber and depreciate it to second quality.

11. Carbonic acid renders it feasible for the first time to employ just as for Pará, a gas for the coagulation instead of strong acids.

12. The employment of carbonic acid is exceedingly simple and may be entrusted to anybody. No exact weights have to be fixed, as in the case of acetic acid and all strong acids; each native may use as much carbonic acid as he likes. He never can do any harm to the product, the surplus of carbonic acid escaping as superfluous and inoffensive gas as soon as the spontaneous coagulation is finished.

13. Also the cheapest agent imaginable has been discovered in carbonic acid. The remarkable progress as regards the production and transport, enable the rubber plantations to procure for themselves a good, valuable and cheap coagulation agent.

It is possible to produce 2 kilos of carbonic acid with 1 kilo of coal, whence the cheapness of carbonic acid follows.

14. Carbonic acid can be procured in all tropical countries because artificial carbonic waters are consumed there in almost every small town.

This new carbonic acid process has been patented in all countries, as it is of eminent importance for the whole plantation industry and for the whole rubber world, because at one blow it ensures the victory over Pará rubber to the *Hevea* rubber. Owing to the patent having been registered, every forbidden utilization, of course, will be punished by law, and every "*Hevea Pará*" produced illegally without license will be confiscated on the strength of the patent law. It is very easy to ascertain by an analysis whether rubber has been produced with the aid of the new process or not.

Rubber Planting at the London International Rubber Congress.

IN these days of close investigation, a large part of the benefit resulting from technical congresses is derived from the careful study of the addresses, not only by those who have had the good fortune to be present, but by the far larger number dependent on their subsequent reproduction in printed form. In this way the proceedings acquire new life and become of permanent value to the cause of scientific research.

More particularly do these considerations apply to the recent London International Rubber Congress, which formed the culminating point of the International Rubber and Allied Trades Exhibition. In the volume just issued, "The Rubber Industry," Dr. Joseph Torrey, and Mr. A. Staines Manders, the editors, have rendered notable service by the reproduction in groups of kindred subjects, of nearly forty lectures and addresses delivered on that occasion, as well as of the subsequent discussions. Taken in conjunction with the Official Guide Book and Catalogue (containing forty-five copyright articles), the new volume serves to perpetuate the exhibition and to render it of permanent value to the economic student and the rubber manufacturer.

An appropriate commencement of the volume is furnished by the address of the president, Sir Henry A. Blake, delivered at the opening of the conference on July 3, in which he drew attention to the estimate that since the last conference (in 1908) the area planted with rubber in the Middle East had risen from 450,000 acres to more than double that figure, while South and Central America and East and West Africa probably show increases in equal proportion. He added that in estimating the probable output of the increased acreage, a considerable deduction should be made on account of plantations established under unsuitable conditions of situation, soil or climate. While the planter had up to the present pinned his faith mainly on the *Hevea Brasiliensis*, or Pará rubber tree, the sometime despised *Manihot Glaziovii*, or Ceara tree, is, according to his information, about to have its vogue. He had heard from a reliable source of at least one Ceara plantation which had begun to yield its harvest at two years' growth, while great improvements had been made in its tapping, which is a different proposition from that of *Hevea*. As to Synthetic rubber, he urged that the demonstrated possibility of its production should emphasize the necessity of strict economy and of aiming at reducing the cost of production of plantation rubber.

The "Introduction—Historical and Descriptive," written by Dr. D. Spence for the first volume, has been reproduced, forming a valuable basis for the addresses reported. Besides an introduction of a general character, it contains a summary of the different forms of coagulation. A further interesting section of the introductory chapter is a table of all the important brands of rubber, their geographical and botanical origin, and (as far as known) their analytical and technical constants.

THE RUBBER PLANTING PROBLEM AS IT PRESENTS ITSELF IN DIFFERENT COUNTRIES.

"Rubber in Uganda" is the title of a retrospective and prospective paper by Mr. R. Fyffe, first assistant, Botanical, Forestry and Scientific Department, Entebbe, Uganda Protectorate. He dealt with the increase of Uganda rubber exports from 68,000 pounds in 1902, to 105,000 pounds in 1909, this increase being due to the working of *Funtumia elastica*. Following the discovery of that species in Uganda, steps were taken to preserve the trees; the forests containing them, which are fortunately large, being leased only to responsible companies, which have to observe regulations brought out by the government for the purpose of conservation. From details quoted, Mr. Fyffe, however,

deduces that although mature *Funtumia* forest trees yield rubber in payable quantity, this is not a plant to be recommended for cultivation, more especially when its rate of growth and yield are compared with that of Pará and Ceara rubber trees. With exotic rubbers of proved plantation value in other countries the prospect is said to be encouraging, and it is hoped that before the exports of indigenous rubbers materially decrease, large areas of these will be in bearing. The growth and yield of some at an early stage are extremely gratifying. Within the last year Ceara, which has been grown for ten years in the country, has been recognized as a valuable rubber-yielding tree, and worthy of extended trial. In thus expressing commendation of Ceara rubber, Mr. Fyffe disclaimed any intention of attaching less importance to Pará, as he considered there was a great future in Uganda for both varieties. Pará he would recommend as a permanent crop, while for a quick return he would prefer Ceara. The former, however, is the stronger tree, and would withstand the effects of oft-repeated tapping better than would Ceara. Owing to the liability of *Castilloa* to attack from a native beetle, Mr. Fyffe considered it extremely improbable that any success would attend the cultivation of that species in Uganda.

In the discussion which followed the reading of Mr. Fyffe's paper, Dr. Preuss expressed the opinion that *Hevea* is from every point of view better for cultivation than *Funtumia*. Dr. Schidrowitz, while recording his experience of finding *Funtumia* exceptionally rich in rubber (having found as high a proportion as 45 per cent.) admitted that as a plantation species it has many disadvantages compared with *Hevea*. The question of the distance at which trees should be planted (suggested by Mr. Fyffe's paper) was discussed from different points of view by various experts, including Messrs. Wickham, Wycherly and Petch.

Another paper of interest was that of the Colonial Government of Madagascar, which was taken as read, dealing with results obtained at the Tamatave experimental station.

M. C. Hugot, lecturer at the University of Bordeaux, read a paper on "The West African Varieties of Latex and Raw Rubber," in the conclusion of which he remarked there is no agreement as to the chemical and physical tests rubber must undergo, regarding which the same progress has not yet been made as with steel. This is due to the neglect to apply physical methods to a substance which is never found twice exactly the same.

"The Rubber Problem in French Western Africa" gave Dr. Aug. Chevalier an opportunity of showing what had been done in the direction indicated. He cited the absence of technical data as to rubber cultivation on the west coast of Africa, as having deterred French capitalists from that field. He urged the establishment of botanical and experimental institutes in such a way as to provide for that region the advantages of that character enjoyed by the Middle East.

In his paper on "The Rubber Plantations in French Cochin China," M. André Cremazy, president of the Board of Agriculture of Cochin China, reported that *Hevea Brasiliensis* had there acclimatized remarkably well, the trees attaining in five years the necessary girth for tapping (20 inches), at a height above the ground of 40 inches. The government of Cochin China had made regulations very favorable to planters, with the view of developing the cultivation of *Hevea*, all that is now lacking being European capital.

The important question of the "Planting and Production of Rubber in Ceylon" was treated in detail by Mr. Kelway Bamber, who stated that the average number of rubber trees per acre in Ceylon may still be taken at about 150, and that for those countries now planting *Hevea*, the wisest policy would be to plant at least

100 trees per acre, a careful selection of seed being made from trees with the best yielding variety of bark. With reference to the question of manufacture (which had been illustrated by a cinematograph exhibition), Mr. Bamber remarked that as one manufacturer prefers one form, and others different forms for their various purposes, for some time crêpe, sheet or block will be required. What planters should strive for is an article not only uniform in appearance, but also uniform in quality and vulcanizing properties.

In a lecture illustrated by lantern slides, Mr. F. A. Stockdale, B. A. F. L. S., gave an interesting account of rubber and balata cultivation in British Guiana, with particular reference to the trials made at various experimental stations and elsewhere. The cultivation of *Sapium Jenmani* had been commenced in 1905, and trees cultivated in the northwestern district are now fruiting regularly. Two distinct kinds are to be found, very closely allied and yielding a high-grade rubber. Experiments with *Castilloa elastica* have so far not been generally satisfactory, but further experiments are contemplated with other varieties of *Castilloa*. The growth of *Funtumia elastica* has been fairly satisfactory and the quality of rubber obtained good, though quantity small. Pará rubber looks particularly promising on the heavier lands near the Demerara river.

Balata tapping was likewise illustrated and described. Exports of balata for the first nine months of the year 1910-1911 had been 1,086,214 pounds, as compared with 979,426 pounds for the same period a year earlier.

With regard to available Crown lands, Mr. Stockdale stated that out of 52,777,000 acres of land in the colony, 36,401,000 are forest-covered, hilly and rolling lands, while of the balance 10,880,000 acres are easily accessible, and fully 9,000,000 of these unalienated from the Crown. Much of this last named area is suitable for rubber cultivation.

Under the title of "The Rubber Industry of Peru," Mr. Emilio Castro gave a detailed account of progress in the Peruvian rubber industry. Production had increased from 1,700 tons in 1902, to 2,801 tons in 1909, having meanwhile touched 3,027 tons in 1907. Regarding the future of the industry, he expressed the opinion that Peru would, under all circumstances, maintain its present production of rubber, preserving all plants producing wild rubber, while improving methods of extraction and coagulation. The Peruvian product being identical with that of the Basin of the Amazon, enjoys a distinct advantage from having to bear an export duty of one-third that on Brazilian rubber.

As dealing with the home of Pará rubber, much interest attaches to the paper read by Dr. J. Huber, Director of the Museu Goeldi, Pará, on the "Rubber Trees and Wild Rubber Reserves of the Amazon." In the first place, he called attention to those rubber trees of the Amazon which, although yielding second-class rubber, represent, nevertheless, most valuable reserves of wild rubber. He further defined the regions in which *Hevea Brasiliensis* is most abundant, as well as the localities where certain other species are produced, yielding in some instances second-class rubber, classified as "borracha fraca," or weak rubber.

Of all the Amazonian species of *Sapium*, at least a dozen, only *Sapium Tapuru* has been until now recognized as producing a good rubber. These *Tapuru* or *Murupita* trees form an important rubber reserve, being very common in certain parts along the main river and the lower course of its affluents, where *Hevea* is scarce or does not grow at all.

Very important as an actual and future reserve of wild rubber is the caucho tree, or *Castilloa Ulei*, not very different in vegetative character from the *Castilloa elastica* of Mexico and the Central American species. In Dr. Huber's opinion, as every river has proved to be rich in caucho, the reserves of that rubber will prove to be enormous. That its output is being increased is shown by the figure of 349 tons in 1895, having risen in 1910 to nearly 8,000 tons.

As the governments cannot prohibit the present destructive exploitation method applied to caucho, without checking the whole industry, it is suggested that they should create some large forest reserves in the most accessible caucho districts, so as to prevent the extinction of this very useful tree, whose product, if well prepared, can compete with the best *Hevea* rubber. In these forest reservations, methodical experiments of replanting and tapping could be conducted for a future regulation of this industry. In the subsequent discussion of Dr. Huber's paper, Messrs. Wickham and Terry, as well as Dr. Stevens, Dr. Esch, Dr. Tromp de Haas and Dr. Sandmann, took part. The last named speaker called attention to the necessity of discriminating in statistical returns between exports of *Hevea* rubber and caucho, an increase having been principally noted in the latter.

In reviewing the comments made, Dr. Huber referred to the improved communications now being established with the southern part of the Amazon region, which form the principal headquarters of *Hevea Brasiliensis*.

The papers to which reference has been made cover the general question of "The Rubber Planting Problem as It Presents Itself in Different Countries," and thus afford a bird's-eye view of the situation in various parts of the world. The other papers read dealt with various important subjects affecting the administration of plantations, cultivation, vulcanization, mechanical tests, etc., which call for more detailed notice, while the statistical features of the case formed the theme of the papers read by Mr. Ernest Hecht and Mr. W. Tinnock.

THE AGRICULTURAL CONFERENCE AT TRINIDAD.

THE editor of THE INDIA RUBBER WORLD, who is at present in the West Indies, attended by invitation the West Indian Agricultural Conference held in Trinidad, January 23 to January 30, inclusive. The programme covered papers and discussions mainly connected with work of experiment and research of the principal crops of the West Indies and British Guiana. An important feature of the conference consisted of addresses on Rubber Cultivation, Demonstration of Matters Relating to Rubber at the St. Clair Experiment Station, etc. Delegates were present from the Royal Botanic Gardens, Kew, the Imperial Institute, British Cotton Growing Association, the West India Committee, the Entomological Research Committee, the Rothamsted Experiment Station, the Imperial Department of Agriculture for the West Indies, the Department of Agriculture for Jamaica, the Agriculture Society of Jamaica, the Department of Agriculture for British Guiana, the Department of Agriculture for Dutch Guiana, and the Department of Agriculture for Trinidad. Delegates were present from nearly all of the West Indian Islands, and the conference was of unusual interest and value. The editor of THE INDIA RUBBER WORLD was courteously made an honorary member of the conference, and is preparing a special report on its rubber features.

RUBBER MANUFACTURERS AS PLANTATION OWNERS.

German (as well as Russian, English and American) rubber manufacturers have for a long time owned rubber tree forests, the product of which, however, is excluded from consideration as to the rubber industry in general, finding a direct outlet in the manufacture of the respective owners. This form of supplying requirements in crude rubber is, however, of relatively limited application. The reason, as it has been remarked, is that a rubber factory, as a rule, cannot limit itself to one description of rubber, but requires different kinds in order to produce the desired compounds. The most important point in rubber manufacture is the right selection and mixing of the most suitable descriptions; plantations of their own serving at most to supplement the other supplies of manufacturers and not rendering them independent of the rubber market.



THIRTEENTH ANNUAL BANQUET OF THE RUBBER CLUB OF AMERICA

AT THE WALDORF-ASTORIA, NEW YORK, JANUARY 12, 1912.

Thirteenth Annual Banquet of the Rubber Club of America.

DESPITE the fact that the dinner of The Rubber Club of America, held at the Waldorf-Astoria on the twelfth of January, was the thirteenth gathering of its kind, it was a highly successful event, and thoroughly enjoyed by all who had the good fortune to be present.

This is one of two occasions in the year which bring together members of the various branches of the rubber trade and allied lines, from all over the country, for the purpose of social intercourse, the renewing of old friendships, and the development of many new ones.

The purposes and general history of the club have been so comprehensively exploited that it would be superfluous to indulge in further reference thereto at this time. Suffice to say, that it is the social storm center of the trade in this country; that it has done and is doing much for the promotion of good fellowship; and has likewise been a happy force in the regulation of abuses and the advancement of the material interests of the rubber trade.

The members of the club and their guests commenced to gather about 6:30 p. m., with a constant increase in numbers from that time on. Shortly after the hour scheduled to begin they filed into the Astor Gallery, where the ceremonies were formally opened by the president of the club, Mr. Frederick C. Hood, who welcomed the members and guests, who for some indefinite period thereafter discussed a most appetizing dinner. Joy was unconfined. At the conclusion of the gastronomic feast Mr. Hood read a very interesting paper on "The Standardization of Rubber," and subsequently introduced the first invited speaker of the evening, the Hon. John W. Weeks, Congressman from Massachusetts, who favored the club with an exposition of "The Work of the Monetary Commission," and whose remarks were very much enjoyed and applauded. Incidental to the opening of Mr. Week's speech he made an allusion to the "Kellys," which, it seems rather unnecessary to state, had reference to the two immortals whose tour of the dining room to highly appropriate music, has become a recognized feature of Rubber Club banquets.

Mr. Weeks was followed by William H. McElroy, whose topic was "Optimism," and who amply vindicated the theory that certain brands of optimism are reflected in the presentation of the choice of two evils, by the acceptance of both.

Succeeding Mr. McElroy was Charles William Burrows, of Cleveland, who spoke on postal problems, and dilated at length on the injustice practiced by an unduly influenced postal administration, in its obvious partiality for publishers of periodicals to the detriment of the public in general, and the bookseller in particular.

Mr. Burrows' speech concluded the addresses of an enjoyable evening, which was enlivened by intermittent song, and the thirteenth annual banquet passed into the history of Rubber Club celebrations.

We give herewith in full Mr. Hood's paper and the speech made by Congressman Weeks.

ADDRESS OF THE CHAIRMAN.

FELLOW members and guests: My first pleasure is to acknowledge my appreciation of the honor of being your president.

Each honor and each pleasure brings its responsibilities. So, as I pondered over the responsibilities of the president of The Rubber Club of America, I naturally turned to the constitution and by-laws. The by-laws adopted for the New England Rubber Club were admirably suited for the purposes of that club. When the New England Rubber Club grew up to manhood and became The Rubber Club of America, the by-laws remained unchanged, except in some minor de-

tails, the principal change being in Article II, which reads as follows:

"The Rubber Club of America is established for the promotion of social intercourse among gentlemen connected with the rubber industry, and the furtherance of educational and scientific research in india-rubber production and manufacture."

This evening is an illustration of Article II. We have had sociability in wine, food and song. We shall soon listen to some results of research from our guests. But should this club limit itself to sociability and research as its chief end and show itself as a living creature only at one annual, formal, midwinter dinner, and at one annual, informal midsummer outing—enjoyable as they are and successful as they are in creating and fostering not only personal but business friendships? Are there no other useful functions? Isn't it axiomatic that a thing to be permanently useful must be permanently productive?

It is almost paradoxical to say that when a thing stands still it goes backward. The statement is, anyway, true of those things that live; for a living thing that stands still certainly goes backward in comparison with other living things.

So, as I pondered, one thing seemed clear. The responsibilities of your president and directors are those assigned by the constitution and by-laws. In December there was held a meeting of the Executive Committee of the club, composed of its directors and officers, to discuss the various functions that might be assumed by the club, and also to discuss whether it was advisable for the club to undertake the assumption of other functions than those prescribed in the by-laws.

So your directors talked over several functions that the club might assume for its own good, and they were clearly in favor of recommending to the members that the by-laws and constitution be revised. Accordingly, a committee will be appointed for that purpose, in time, so that the suggestions for the revision can be acted upon at the next annual meeting of the club, to be held in April next.

There certainly can be no objection to the club's having a constitution that will permit the club to be useful as well as ornamental. It does not have to be useful because it has the power to be, any more than it is necessary to spend all one's money because one has money in the bank. But we will all agree that it is wise to have money in the bank, for we may have use for it that cannot be foreseen.

If the adoption of a revised constitution and by-laws would tend to bring the nominating committee into a feeling of increased responsibility, so that they would make nominations that would bring in more of the men from representative concerns all over the country, such a revision surely would meet the approval of all of us.

It is interesting to note that out of nine directors, four are from Boston, four from New York, and one from Akron. It is also interesting to note that of the two hundred and sixty-four members of this club, one hundred and fifty-five are from Massachusetts, fifty-two from New York, twelve from Connecticut, twelve from Rhode Island, five from Ohio, and three from Pennsylvania. The proportion of membership from Massachusetts is gratifying, but it is not proportionately representative of the rubber industry. An effort should and will be made to add to our membership men from all representative concerns dealing in rubber throughout the United States. If the club should decide to revise its constitution, so that the directors could undertake the solution of problems other than sociability and research, the directors would probably decide whether the problem was one for solution which they ought to undertake. And if they decided affirmatively they would probably appoint special committees adapted for work on that particular problem.

Our common interest is rubber. So in our directors' meeting in December, our first thoughts were of rubber, and naturally we talked of Pará rubber. We spoke of the multitude of sins the words, "Pará Rubber" cover. Who can say what the words mean? Many would say rubber from the *Hevea* tree. But when one says "*Hevea*," does he mean *Hevea Brasiliensis*, or some one of the nineteen other kinds of *Hevea* mentioned in Henry Pearson's book? There are fifty-seven—or, more likely, one hundred and fifty-seven—varieties of rubber that come within the law of the present definition of

Para rubber; because there is no definition, no law, no standardization of kinds, names, qualities, or really defined customs or descriptions. These hundred and fifty-seven varieties of Para rubber from the various islands and rivers of Brazil and countries of South America—not to mention the numberless kinds of plantation rubber masquerading under the name of Para, coagulated and adulterated in such ingenious ignorance—should make us "stop, look, listen," and consider if it is not possible in some way to standardize or classify the varieties, if we only went so far as to properly name them so as to enable the dealer to properly represent, sell and deliver, and the manufacturer to properly use, manufacture and distribute his manufactured goods, so that gatherer, dealer, manufacturer and the public shall gain through the integrity of the standardized crude.

Let us consider four agents used for coagulating so-called plantation Paras. Acetic acid has been very generally used. An alum solution has been slightly used. A patented solution of hydrofluoric acid called "Purub" has been used. An agent called "Martinol" is also being used, this "Martinol" being a wood product containing acetic acid, methyl alcohol and phenol.

Then, let us consider how these plantations are sorted in London. Just think of receiving in a shipment of a single ton of so-called biscuits and sheets, rubber that has been coagulated by all four of these agents! And how can one expect uniform cures from such ununiform parts?

I think an approach can be made for a basis of the solution of the problem of classifying, or standardization, or naming rubber, if we recognize and admit freely that manufacturers do really sort and standardize rubbers used by them, and if we recognize that each manufacturer knows as much as his competitors. An able manufacturer once said to me that he had come to the conclusion that his secret methods were simply old-fashioned methods.

The development of all manufacturing today is along the lines of science, and the ascertaining of truth—which is science. An industry, like a city, can increase its growth and importance and integrity by the use of practical science.

The dealer will profit by standardization or classification, because he can deal in classified, standardized rubbers—as well as unclassified—for we all know that values seek their levels.

The manufacturer will profit by his ability to reduce his factor of safety for his quality, for the whole is only the sum of the parts, and if the parts are not uniform, the whole cannot be uniform. His factor of quality safety is reduced by the standardization of the parts.

We are all interdependent. If you sympathize with these thoughts on classification, the question arises as to the method of procedure. President Grant's statement applies here: "The way to resume is to resume." "But how?" one might ask. There are so many ways it is difficult to choose the best. First of all, I remember a saying of a well-known lawyer, "Advice not paid for is worth what you pay for it." Therefore, there must be an appropriation subscribed by deal-

ers and manufacturers; for sometimes work not paid for is worth what you pay for it! With a modest appropriation to start with, there are many agencies to select from. There is, for instance, the rubber section of the Society of Chemical Engineers. There is the Produce Exchange of New York. There can be a special committee of practical men, including chemists and dealers. There are so many ways to spend money after one has it! But we must have it before we spend it. And then, again, if all interested will subscribe to such a fund, all will be interested in the solution.

So the question is, "Is this a proper problem to be solved, and who is interested in solving it?"

It was the unanimous belief of your board of directors that an attempt should be made to start the ball rolling, but that the ball should not roll too fast; that one kind of rubber should be standardized, or classified, or named, first; and that the work of classification should not proceed too swiftly.

Your president was voted the power of appointing the committee, of which he should be one. But he has purposely not appointed any associates to such a committee, preferring to speak frankly in regard to this matter at this dinner, and then await the comments that will surely follow.

Another practical and important function that this club could assume is in respect to the tariff. There are gathered here many manufacturers who are competitors, but this is one time when we can gather together and forget that we are competitors.

The rubber industry of the world can be logically divided by countries, and while all manufacturers of all countries are more or less interdependent, we are members of The Rubber Club of America, and are here to foster the rubber trade of this country. We certainly do not want to assume any functions that will conflict with the interpretations of the Supreme Court in regard to the "Restraint of Trade" clause. The old adage, "All Frenchmen are Frenchmen when they leave the shores of France" applies to us. We have a common interest that so long as we are reasonably economical and industrious we should have a reasonable tariff against foreign nations, to protect ourselves against indiscriminate dumping of their excess stock or of their unbranded or misbranded "jobs."

There is probably no industry approaching the volume of business of the rubber industries which safeguards the public as much as the rubber manufacturer does. Every manufacturer adopts his own trade marks and puts them on his products. As the theory of the trade mark law is the protection of the consumer, a manufacturer's brand is the consumer's best guarantee of quality.

It is well known that during the discussions leading up to the passing of the present tariff law, the individual rubber manufacturers who appeared in Washington were asked if they represented any organization.

Working under the old by-laws, the directors decided that they had no right under those by-laws to appoint committees to represent the industry in Washington. It may prove useful if this club could appoint representatives to clearly state the



FREDERIC C. HOOD, PRESIDENT.



HON. JOHN W. WEEKS.



FRANCIS H. APPLETON, VICE-PRESIDENT.

needs of rubber manufacturers, and of dealers in not only crude and reclaimed rubber, but manufactured goods.

When one realizes that the total value of manufactured rubber products in this country is very close to \$200,000,000, and that this country consumes approximately 50 per cent. of the total world's production of rubber, these facts deepen the feeling of responsibility in the minds of your directors and officers.

There are many other functions which your directors can assume for the good of this club, and it is the earnest belief of your president that a club to be permanent must be useful.

(Applause.)

AMERICAN MONETARY PROBLEMS.

THE Honorable J. W. Weeks, who spoke of "The Work of the Monetary Commission," was introduced by the president as follows:

The pendulum of an old-fashioned clock steadies its internal working; but if the pendulum is forced to swing too far one way, it swings too far to the opposite side.

The violent swinging of the financial pendulum of credit has caused extravagant and fraudulent speculation on the one side, and terrible sufferings and panics on the other. The old-fashioned pendulum of credit should be modernized into a well regulated balance wheel. This regulation and safeguarding of credit and of finance has been the work of the Monetary Commission.

I have great pleasure in introducing to you Congressman John W. Weeks, of Massachusetts. (Applause.)

HONORABLE JOHN W. WEEKS, of Massachusetts:

Mr. President and Gentlemen: I feel very much complimented by your greeting.

I think I received about the same amount of applause as did Kelly when he appeared. (Applause.) And he is an extremely popular man on all occasions.

I am invited here to-night because I am trying to represent in Congress—being a business man like the rest of you—the president of your club and some of the other members who are present tonight.

Mr. Hood telegraphed me that he had never asked anything of me during the seven years that I had represented the district, and, therefore, he insisted that I come here to-night. That means that probably he had exhausted his reserve to get other public men from Washington, and I was the last choice. (Laughter, and cries of "No, Sir!" "Oh, no!" "Absolutely no!") But I am so accustomed to being last rather than first in such matters that that does not trouble me in the least.

I am going to discuss a very dry subject, but I hope it will have some bearing on the last paragraph in your president's address; that it may indicate something to you which will be useful, as well as otherwise, in making this club perpetual.

I shall talk to you, probably, until I see that you are tired of hearing what I say. My speeches are not speeches at all. They are talks. They can be cut off at any point, like a bologna sau-

sage, without in any respect breaking the continuity of the string, or the effect of what has gone before, or what might come after. (Laughter.)

In 1907 you will all recall that we had one of our periodical panics. When Congress convened, a month or two after the height of the panic, the first thing that was done was to appoint the Committee of Banking and Currency in the House, the Finance Committee of the Senate, and set them to work trying to frame a solution of our banking and currency problems.

I had been, and was at that time, a member of the Banking and Currency Committee of the House. After working several months we brought forth what was known as the Aldrich-Vreeland Commission bill, a bill which everybody admits was not perfect in any respect, and which has not been used anywhere for any purpose, but which, in my judgment, would be extremely useful, if we had a panic before we got permanent legislation. That bill provided for an issue of emergency currency, based on commercial paper—the first recognition of the issuing of currency on commercial paper which we have had in this country. There are five hundred millions of circulation printed, stored in a vault, in shares which may be used by you and all other business men if we happened to get into trouble and needed more circulation than we have in the ordinary course of affairs. That bill also provided for what is known as the Monetary Commission, to consist of nine members of the Senate and nine members of the House. We have been, as a result of that, at work for some three and a half years trying to bring about a result which would solve these great questions.

In 1844, when presenting the Bank Act to the Commons, Robert Peel used this language, which I will read:

"There is no contract, public or private, no engagement, national or individual, unaffected by it. The enterprise of commerce, the profits of trade, the arrangements made in the domestic relations of life, are all affected by this question submitted to you for your consideration."

That was a proposition to change the method of note issuing in Great Britain. We have undertaken not only that, but we have undertaken the much larger problem of changing our banking methods, by establishing banks in foreign countries, of changing the method of making paper, so that we may have bank accepted bills, of changing the location of our reserves to some extent, and more than all, providing for a central organization which will be supplemental to our present banking system.

We found that there were many weaknesses in our system. It is not the worst system in the world, as Mr. Carnegie said in his rambling testimony yesterday before the Steel Investigation. (Laughter.) But it is a system which does not respond to the needs of business in critical times, and it does not permit our extending our operations as a world power, as a financial world power, so that we may compete with our competitors successfully. And those are some of the questions which we have considered.

In the first place, there is no elasticity in our present circulation. We have something like a billion, six hundred millions in gold and gold certificates outstanding; something like five hun-



FRANK D. BALDERSTON, SECRETARY.



HAROLD P. FULLER, ASSISTANT SECRETARY.



J. FRANK DUNBAR, TREASURER.

dred millions of silver; about seven hundred millions of national bank notes secured by government bonds, as you know, and three hundred and forty-six millions of greenbacks. The greenbacks are limited by law to three hundred and forty-six millions; the gold is limited by the amount of gold that comes in for coinage; the silver is limited to the present outstanding by law, and the only elasticity which we are able to get is in the national bank notes. We have over seven hundred millions—some seven hundred and twenty millions outstanding to-day. There are but little more than nine hundred millions of government bonds outstanding now. Therefore, all but about two hundred millions of our government bonds are now in the National Treasury, held as a basis for circulation of bank notes outstanding. Therefore, we cannot extend very much more in that direction; because it would be impossible to get the bonds. Many of them are held by savings banks and trustees, in such ways that they would not go on the market under any conditions, and that is the only remedy we have for issuing additional circulation when you, gentlemen, require it in your business.

Then, we found—and already knew, of course—that our reserves were not properly placed. You know that country banks are required to keep fifteen per cent. of their deposits in reserve, of which 6 per cent. must be in their own vaults, and nine per cent. may be with reserve agents. Banks in reserve cities must keep twenty-five per cent. of their deposits in reserve, one-half of which must be in their own vaults, and the other half may be with reserve agents. Central reserve cities—New York, Chicago and St. Louis—must keep twenty-five per cent. of their deposits in their own vaults.

The result of that is that the reserves of the country gradually get into the hands of the banks in the central reserve cities; and that is especially true when business throughout the country is slack and money cannot be used to advantage at home.

Not only do the reserves gradually centre in New York—which is our great financial centre—but also the surplus moneys which country banks have is either sent here to their reserve agents, because they can get two per cent. for it, or else is sent here to be loaned—likely to the customers of the New York banks themselves.

Now, that was the condition in 1907. The money from the country had centered in New York to an unusual extent. The New York banks in order to take care of the money which came to them, in order to get a new dollar for an old one, naturally tried to loan it, because they are paying two per cent. for their balances. They must get two and a half or two and three-quarters per cent. at least for that money or else they are losing on it. The tendency, therefore, is to loan that money somewhere where they can get it back promptly in case there is necessity for it, and that tendency leads inevitably in this country to loaning on stock exchange collateral as security—on notes secured by stock exchange collateral. In other words, it is a temptation to create speculative use of the money at, perhaps, the expense of its commercial use. It is inevitable with our system that that should be so; because the New York banks cannot certainly obtain their loans promptly in any other way unless we have some other kind of paper in circulation in this country than we have to-day.

In 1907, when the country banks wanted to get their money back in the fall, they called for their surpluses in New York, and called for their reserves, and the result was the precipitation of that panic. Quite likely the country was ripe for the panic at that time. I think myself that it was. But I want to say that it was no fault of the New York banks that we had the panic, although the failures commenced here; because the New York banks, which at that time had something like a billion, one hundred and fifty millions of deposits, had two hundred and sixty, two hundred and seventy or two hundred and eighty millions reserve in their own vaults, which they were required to keep, but they had absolutely five hundred and fifty millions of bank deposits, and if the banks of the country had called on them for one half of the deposits it would have taken all the reserves they had. The result was that they commenced to call loans, and the calling of loans precipitated the sale of securities on the stock market, and finally created a panic in the stock market, which was followed by banks failing in New York. That frightened the country banks so that they not only drew home the money they needed, but they drew home more than they needed, and it was found at the end of the panic that they not only had their fifteen per cent. reserve, but, in many cases, twenty-five and thirty and forty per cent. reserve. The business men too, likely did exactly the same thing. I know large business enterprises in New England that carried twice the ordinary pay roll in cash all of the time so that they would not fail to be able to take care of their pay roll when it came due, fearing that they might not be able to unless they kept themselves supplied; but, of course, keeping themselves supplied with a double supply

added to the distress of somebody else. Then, frightened and foolish people took their money and locked it up in safe deposit vaults, and the result of the panic was widespread, and ended, as it always does, in the issuing of clearing house certificates.

Now, the issuing of clearing house certificates has just one effect—it clears the local situation at once; because it enables the banks in the central cities to pay their balances off by clearing house certificates, but it brings about distress in business all throughout the country, except local business.

Now, that was the result in 1907. If one of you gentlemen deposited a check in your bank on a bank in Dallas, Texas, and that check was forwarded to Dallas for collection, the probabilities are that your bank would get back word that it had been given credit for that check on the books of the Dallas, Texas, bank. Well, you wanted your money, and the result was that you drew on your bank, and the bank was obliged to make a forced loan. It had not received any return on that check, but it had to supply the money in some way to keep you going. The result was distress and breakdown and failure of business in all directions.

Then, again, there was no co-operation and is none today between banks. Every bank is jealous of every other bank. It is trying to get what business it can. It never comes to the rescue of the general situation through the issuing of clearing house certificates, until the distress becomes so general that every bank is fearful that there will be a general failure of banks unless that is done. Banks do not like to show their hands to their rivals; they don't like to say, "We need to issue clearing house certificates," even to their best friends in the banking business. There is absolutely no co-operation. The reserves of the country, as I have said, furthermore, are scattered from one end of the country to the other. A large percentage of them are in the vaults of the banks, which is just the same principle as we would have if we claimed that we had a national military reserve of five millions of men, because we have five millions of men in this country of military age. But those men are scattered from one end of the country to the other. They live in villages and cities here and there and everywhere. They are of no use as a defense to the country unless they are brought together in some co-operative way, and, therefore, you finally add much to the present difficulty by having a captain of each one of those little villages trying to get more men than another village to help him. We would have just exactly the condition which obtained in banks under such circumstances.

Furthermore, banks are prohibited by law from loaning money when they are below their reserve. If the New York City banks have a reserve of twenty-five per cent., and it should fall to twenty-four per cent., they are prohibited by law from loaning money. Be it said to their credit that they did loan money in 1907, and nearly every other bank was below its reserve. There were first-class banks in New York down to fifteen, and perhaps twelve per cent. in their reserve during the panic, and they had to do it or have a general collapse; but they were breaking the law when they did it.

I recall the story of a certain hospital, where, under the law which provided the means for supporting that hospital a certain number of rooms had to be maintained as emergency rooms under the law. They could not be used, but must be maintained as emergency rooms. Well, a building fell, or something happened in the neighborhood of that hospital, and inevitably a great number of people had filled up all the other rooms of the hospital, and then the superintendent said he would have to stop, because he couldn't use those rooms, for, under the law, they were emergency rooms and must be retained as such.

That is just as sane as to compel banks to hold their reserves after they have gotten down to the legal limit. The proper use of reserves is to have them where they can be used, and make use of them when the business community requires it. ("Hear!" "Hear!")

Now, those are some of the troubles which we found in our banking system, in our currency system.

Then, again, our currency, our bank note currency, is composed very largely—almost entirely, in fact—of two per cent. bonds. The two per cent. bonds are not worth par, or would not be if they did not have a circulation privilege behind them, and, therefore, if the circulation privilege should happen to be removed, those bonds, which cost the banks all the way from par to 110, would drop to perhaps about seventy; because our national debt has no definite date of maturity. They are a menace, not only to the community, but to the banks that hold them, and we have had to consider how we would get rid of those two per cent. bonds.

Well, now, about a year ago, after we had consulted with various authorities the world over, in all of the European countries, with the authorities of Canada and with banking men in this country, by direction of the Monetary Commission, Senator

Aldrich, its chairman, issued what is known as the Aldrich plan. It was a plan providing for a readjustment of these various conditions which I have outlined, and during the past year we have been giving hearings. We have been discussing the question before banking associations and before business associations. We have tried as far as possible to get the judgment of the very best minds on this subject the world over, and tried to apply to our system a system which, without upsetting it, would make our banking and currency system as modern and up-to-date and useful as are the systems of European countries.

The plan which was issued at that time, and which has been changed somewhat, and has finally been adopted in the report of the Monetary Commission, which was made to Congress last Tuesday with a Bill and Report, is an embodiment of the views of all of these people and the views of the sixteen members of the commission.

Now, I want to say for the commission, that we commenced the consideration of this subject without any very clear ideas, as individuals, as to what we ought to do; but we have been studying and studying, and reading and listening, until the sixteen men, coming from all sections of the country—three from the Rocky Mountain section, five from the South, three from the Middle West and five from the East—have come to exactly the same conclusion, and, for the first time in the history of the Government, we have a Monetary Report, a matter of the first importance to all classes of citizens, signed by every man on the commission, Democrat and Republican. Whatever may have been his views before, we have come to a uniform result. (Applause.)

And, furthermore, I want to say that there has been no politics whatever in the consideration of this question. (Applause.)

It is too big, it is too important to all elements of our people to allow politics to interfere in any degree with its solution. I think we have practically the uniform support of the bankers of this country of all shades and all locations in favor of this report. The American Bankers' Association has, and perhaps with reason, voted, with one dissenting vote, at its great meeting in New Orleans, in favor of the adoption of this plan. Business men throughout the country who have given it consideration have endorsed it. Financial students, and all other classes of men who have considered it from every standpoint, have given it unqualified endorsement, until we can practically say that the opposition to it which appears to-day is negligible. Therefore, the only thing to do is to get it on the statute books, and that is what we have before us, and that is the thing which I particularly want to call to your consideration; because it is up to you, and those you represent, and those that other representative bodies like yourselves represent, to see that legislation, which is of the greatest importance to you and all kindred business interests, and all other classes of interests, is enacted into law.

I have not the time, in the twenty or twenty-five or thirty minutes which I am going to talk, to go into any considerable detail in regard to this plan. But it provides for what is known as the National Reserve Association. Some people have said it is the United States Bank over again. I say it is distinctly different from the United States Bank, which was centralizing in its effect, while this is decentralizing in its effect. But I want to say of the United States Bank—and I say this carefully weighing my words—that if President Jackson could be credited with all of the good things which all of his friends claimed for him, and there is set against that the destruction of the second United States Bank, I think it would be a fair offset; for the United States Bank, if it had continued to exist, and had been modified and changed and brought down to date, we would have today, in my judgment, a banking system which would be as useful for our needs as are the banking systems of Europe, every country of which has a better banking and currency system than we have.

This central reserve organization is based on local associations similar to clearing house associations. There must be ten banks in each clearing house association, having at least five millions of capital, and twenty per cent. surplus, and so forth. I won't go into those details. But in electing directors of these local associations, each bank has one vote in electing two-thirds of the directors, and in electing the other third, the banks vote the number of shares which they hold. Every bank which is a subscriber to the National Reserve Association subscribes for twenty per cent. of its capital. The capital of the reserve association is to be twenty per cent. of the total capital of the banks of the country, which would be something like four hundred millions. Supposing all of the banks come in, it would mean—and we call fifty per cent. of this capital—it would mean one hundred millions of dollars, and we provide that the bank shall not be started until one hundred millions of dollars have been subscribed and paid in as fifty per cent. of the total capital subscribed.

Now, we have adopted the Federal system of electing directors. We recognized the fact that politics must be kept out of this bank,

as it was not kept out of the second United States Bank, and that it must be beyond the possibility that any interest or any set of men shall obtain control of it. That has been the most important thing we have had to consider in connection with this whole subject, because it is a thing that the demagogue will seize to criticize, and it is a thing that the thinking man would seize to criticize, if we left anything for him to seize. And, therefore, we brought about this method of electing directors—that the local associations shall elect directors as I have instanced. And then we divide the country into fifteen districts, and we elect directors in those fifteen districts by electing one-half of them, each local association in that district having one vote; then, the stock owned by the banks in those local associations electing two-thirds as many directors as the banks voting individually, and then the other six of the directors shall be elected from the business, the commercial, the agricultural interests of the country by those directors who have been elected. And then, when we come to electing the forty-six directors of the National Reserve Association itself, we provide that the Government shall have an interest in it; because the Government has to do all of its business with this central organization. We provide that the Secretary of the Treasury, the Secretary of Agriculture, the Secretary of Commerce and Labor, and the Comptroller of the Currency, shall all be directors of this bank, giving the Government four directors. And then there shall be three more governmental directors—the Governor of the Bank and the two Deputy Governors of the Bank. The only politics that there can possibly be in this is that the President of the United States appoints the Governor of the Bank. But he appoints the Governor of the Bank from a list submitted by the Directors of the National Reserve Association, which list shall consist of at least three men. And if for any reason he removes the Governor of the Bank—as he might do—he must supply his place from a list submitted by the Directors of the Association. That is all the politics there is in it.

Now, we provided that the banks which subscribed to its stock shall hold this stock, but it is to belong to the association; it is not transferable to anybody. Therefore, in order to get control of the association it would be necessary to try to control all of the banks of the country, state as well as national. Of course, it is a perfect piece of folly to say that anybody would attempt the entire control of them, because they would not know what to do with them if they had control. And then it would involve more capital than would be possible for any combination of men to control, and would create a sentiment which would bring about the probable repeal of the charter. Therefore, we believe that we have absolutely eliminated both politics and the possibility of control by any such set of men from this organization.

Now, let me call your attention to one or two facts, which will directly affect the business interests which you represent, one of which is that we provide for a new kind of paper transaction; that is, a bank accepted bill.

Now, in the present system, you, as business men, go to your own bank and borrow money on your notes; or, if your credit is good enough, you sell your note to some other bank, but that note has only a circulation as far as you are known personally as a business man. It has not even a country-wide circulation. You could not sell your note, for instance, in the far West, unless you have a very big and very broad credit. In Europe they do things better, and we have provided for a similar method in this bill. For instance, once you establish the credit that you can get from your bank, you can go to your bank and by depositing collateral, or securing the bank in some other way, you draw a draft on your bank, the bank accepts the draft, and then that draft becomes current throughout the country; not because your name is on it, but because the bank has accepted it, and the bank is known not only in the country where it is located, but, quite likely, in other countries. The result of that is that in Germany, for instance, there is a vast amount of bank accepted paper of French origin and English origin. In France there is more commercial paper of this character of English and German origin. In England there is more or less French and German paper disseminated, the result being that when any business man wishes to extend his credit he gets his bank to accept his note, and then that note becomes current throughout not only his own country, but in other countries. It has another effect in Europe. When the balance of trade is against one of those countries, instead of sending gold to pay the balance of trade, as we would have to do, they send back some of this paper which originated in the country in whose favor the balance of trade happens to be, and save the shipping of gold back and forth. The net result of that is that every business man who has a good credit, would have a broader credit than today, or than would be possible for him to have under present conditions; because he not only has the credit of his own bank, but he has his name on a piece of paper which is accepted by his bank, or which quite likely will go to any part of the world. If, for instance, you

could get the largest banks in New York any one of them—to accept your note, any other bank in the United States would be glad to buy that note, and would buy it, and would buy it if it were a short time note, instead of loaning its money on the kind of collateral which it must loan it on now. In other words, it would have a piece of paper which would sell current at any time, in any place. You would have a broader credit, every one of you, and you would get your money at a lower rate of interest.

You may say that that would reflect on the prosperity of the banks; but the fact is that France and Germany and England, where interest rates are very materially lower than they are in this country, the banks make quite as much money as do our banks; because they are enabled to keep their money at work all of the time in this way. The rate of the Bank of France, for instance, has not fluctuated more than two and a half per cent. for twenty years.

In the Boer War, and in our 1907 panic, the rate of the Bank of France did not get above four and a half per cent; it has been as low as two per cent. That certainly has not averaged higher than three and a half per cent. during this time. Now, while I don't anticipate that in a developing country like ours we would get as low interest rate as you would get in France or Germany or England, we would get more or less lower rates for business men who had good credit—would get materially lower rate, because the method would be followed if we adopted this system.

Then, we have provided for foreign banks. There is not a bank south of the Isthmus of Panama under American control; there is not a bank in the Orient, except in the Philippines, under American control. There is not a bank in Europe under American control. There are some branches of private banking houses of New York in Europe, but not in the other parts of the world. The result is that our foreign business is financed by European banks. It costs more for you to do that, and it takes away from us the prestige which goes with financing our own business. You know perfectly well that if you buy rubber in South America, that transaction is financed through a London or a Paris or a Berlin bank. If a tanner in the United States buys hides from the Argentine, the purchaser in the United States arranges for an acceptance of the draft through his own bank

with a London bank, which goes through the South American bank to the London bank, and commission is paid to the South American bank and paid to his own local bank in this country, and a larger commission is paid your London bank. Millions and tens of millions of dollars are paid by the business men of this country to the bankers of Europe, simply because we haven't any means of financing ourselves in the Orient, in South America, or up-to-date means of financing ourselves in Europe. There is no American Exchange in South America; there is no American Exchange in the Orient. If we are going to develop our trade with these countries, as we should do, for we are only doing a small percentage of it, we must have suitable banking arrangements, and that is our reason for establishing these foreign banks.

Now, gentlemen, I have talked half an hour. As I said, it is an endless subject, but I want to impress upon you that, in my judgment, and in the judgment of every man who has given it consideration, it is the most important public question we have before us to-day, and it will remain the most important public question until you get behind your Representatives and Senators and compel it being put on the statute books.

Mr. Furman, the President of the First National Bank of Chicago, one of the ablest bankers, in my opinion, in this country, stated, in a public address the other day, something which I fully endorse. He says, "I am convinced that the National Reserve Association will become the largest, the strongest, the safest and the best financial institution in the world." I cordially endorse that statement.

If what has been proposed is done, we need have no more currency banks in this country. We will have financial depressions, as we always have had and always will have as long as business men over-expand and have to contract. Those will come at certain periods, but the currency bank will be a thing of the past. A financial bank, such as we have known, will be a thing of the past. Labor will not be thrown out of employment; capital will not be idle; the enormous losses which we have had as a result of the almost numberless panics since the Civil War, will be things of the past, and we will go on in the even tenor of our way, doing business as do our commercial rivals in foreign countries, being able to compete with them, because we have similar or equally good tools to compete with. (Great applause.)

THE MEMBERS AND GUESTS PRESENT.

At the speakers' table:

F. H. Appleton.
Hon. L. D. Apsley.
Ex-Gov. A. O. Bourn.
Charles W. Burrows.
J. H. Flint.
G. B. Hodgman.
F. C. Hood.
W. H. McElroy.
H. E. Raymond.
Robert L. Rice.
Homer E. Sawyer.
Hon. J. W. Weeks.
E. S. Williams.

At the other tables:

G. E. Alden.
I. V. Alden.
F. H. Appleton, Jr.
C. B. Archer.
H. G. Armstrong.
C. H. Arnold.
Harry C. Arnold.
W. H. Arnold.

Robert Badenhop.
C. J. Bailey.
Robert L. Baird.
T. W. Baird.
W. T. Baird.
F. D. Balderston.
Wm. E. Barker.
Chas. W. Barns.
W. F. Bass.
T. W. Bassett.
E. A. Bates.
J. E. Bates.
H. H. Bedell.
A. O. Bourn, Jr.
W. Browning.
A. W. Brunn.
Ira F. Burnham.

E. F. Carpenter.
C. C. Case.
J. H. Chadbourne.
J. J. Chandler.
R. L. Chipman.
E. H. Clapp.
T. H. Clark.
Henry Z. Cobb.

Chas. A. Coe.
A. E. Cole.
D. S. Collins.
A. J. Conlin and two guests.
G. T. Cottle.
B. H. Currier.
D. A. Cutler and one guest.

Chas. J. Davol.
J. P. Devine.
E. F. Dewing.
Roy Dorr.
J. A. H. Dressel.
J. Frank Dunbar.
H. T. Dunn.
H. W. Du Puy.

R. M. P. Eagles and two guests.
C. F. Edgerton.

Eberhard Faber.
D. F. Feinberg.
H. K. Felton.
W. F. Field.
Frank Fox.
H. W. French and one guest.
H. P. Fuller.

C. A. Gilbert.
W. H. Gleason.
A. A. Glidden.
F. S. Goodall.
W. L. Gough and one guest.
Frederick Gove.
N. Lincoln Greene.
Mr. Grentert.

Geo. E. Hall.
Richard C. Hall.
C. F. Hamilton.
J. J. Hawkins.
Geo. D. Hazen.
H. T. Hering.
E. H. Hicks.
S. T. Hodgman.
A. N. Hood.
M. G. Hopkins.
Mr. Hopping.

W. C. Howard.
H. B. Hubbard.
E. E. Huber.
F. H. S. Hyde.

Ernest Jacoby.
J. T. Johnstone.

E. B. Kelley and three guests.
W. J. Kelly.
C. Kenyon, Jr.
Harry L. Kenyon.
Geo. Kenyon.
Wm. Keyes.
E. H. Kidder.
E. Krum.

F. T. Lahey.
Harry Laird.
Dwight C. Leeper.
S. G. Lewis and two guests.
P. H. Loewenthal.
R. M. Loewenthal.
Clarence H. Lowenthal.
R. A. Lowenthal.
J. S. Lowman and one guest.
G. A. Ludington.
J. P. Lyons.

L. P. Mac Michael.
Warren MacPherson.
Ed. Maurer and two guests.
A. N. Mayo.
John J. Meacham.
Otto Meyer.
W. H. Miner and one guest.
Henry Montgomery.
H. Muehlstein.

E. F. Norton.

J. E. Odell.
Mr. Onthank.

W. G. Page.
W. H. Palmer.
John S. Patterson.
F. H. Peaty.
Henry Perlish.
Geo. W. Perry.
E. F. Pfaff.
Wm. Poole.
W. L. Proctor.
Geo. E. B. Putnam.

Arthur Reeve.
Edward R. Rice.
W. G. Ryckman and two guests.

R. P. Sachs.
F. F. Schaffer.
F. M. Schwab.
H. D. Scott.
J. A. Scott.
R. F. Spencer.
Chas. F. Spratt.
H. B. Stedman.
Harold Stimpson.
Everett Stone.
Griswold Stowe.

A. B. W. Tallman.
L. H. Thomas.
A. D. Thornton.
O. S. Tweedy.

J. C. Van Cleaf.

E. E. Wadbrook.
H. F. Wanning.
Mr. Warner.
A. W. Warren.
Herman Weber.
George Weis.
W. Williams.
Chas. T. Wilson.
J. W. Work.

A. Zeiss.

Tires in Garden and Palace.

THE Twelfth Annual Automobile Show opened at Madison Square Garden on the 6th of January, and the display of the various types of pleasure vehicles and automobile accessories was, perhaps, the most complete and elaborate that has ever been offered to the New York public. Every possible type of motor pleasure vehicle known, and every accessory, including the various devices that contribute to the building and operation of a motor car, was at hand in elaborate setting, the whole going to make one of the most brilliant and comprehensive exhibits ever made in this line.

Practically every American manufacturer of motor cars was represented, and it is safe to assume that few, if any, of the accessory manufacturers failed to make an attractive showing.

The tires shown probably covered every type and carried every improvement known up to the present time. While it is doubtful if any new principle was involved in the exhibit, there were a great many additions made to tires which had already acquired at least a national reputation, and the usual claims for the various merits of each vigorously exploited. A considerable increase in anti-skid treads was a feature of this year's show, although nothing radically new was shown. Tire vulcanizers of various sorts were also very much in evidence.

An appreciably increasing demand for demountable tire rims was evident, and was especially noticed in connection with the manufacture of high-priced cars, although rim manufacturers had exerted themselves to produce a rim that can be consistently used on a very moderate priced vehicle.

There are a considerable number of important manufacturers making pneumatic tires for automobiles in the United States, not to mention a great many that cannot consistently be so classed. The total annual production of tires in this country is claimed to be in the vicinity of 3,500,000, the year 1911 being the greatest in point of production since the inception of motoring, and it is generally assumed that during the current year all previous tire producing records will be exceeded. The tire-consuming public is afforded many and increasing opportunities to gain knowledge in reference to the tires that they are buying, as most of the large concerns issue literature periodically dealing with anti-skids, air-pressures, over-sizes, normal load weights, etc.

By a consumer covering a large annual mileage, literature of this sort might be digested with reference to his particular interests and in the promotion of a reasonable conception of the tire producer's end of it. It does not require much argument to indicate that knowledge of this sort on the part of a tire buyer would be mutually beneficial to himself and the tire maker, as there is no doubt but that numberless claims made upon the tire manufacturers are the result of careless and improper treatment of tires on the part of the consumer, which a proper understanding on the part of the user, of the make up and capacity of the tire would naturally obviate.

Much progress has been made in the matter of tire repair during the past year, perhaps the most important element of which is the re-treading process. Blow-out patches and numberless other emergency repair materials do much to increase the life of a tire, though after all the most effective way to dispense with the annoyance of a damaged tire is to acquire a new one.

The truck exhibit held at the Garden from the 15th to the 20th of January inclusive, really offered little of additional interest in the way of tire or rubber accessory exhibits. This particular display did, however, indicate the wonderful advance made during the year 1911 in the development and demand for the power truck, not to mention the significance of the showing made by the tire department.

It was demonstrated that actual sales of large quantities of

heavy vehicles, especially trucks of three to five tons capacity, were a conspicuous feature of commercial vehicle progress for 1911, perhaps, a rather surprising phase of which was developed in the popularity of the electric-powered delivery vehicle.

Another and very gratifying element of the motor truck industry is the improvement in construction, fastening processes and the general adaptability of the truck tire, which is the outcome of special effort on the part of some of the more important makers of this product.

The exhibition opening at Grand Central Palace, running from January 10 to 17 inclusive, was most attractive, and housed in a structure that has no peer in this country as an exhibition building.

Virtually all, if not all, of the tires at the Palace show were in the Garden exhibition, and nothing new in the way of rubber accessories seems to have developed.

One of the particularly interesting exhibits was that of the Peck Wheel Company, of Chicago, showing a spring wheel to be used with a solid tire, the specific purpose being to provide for the resistance that would otherwise be created by the tension of the springs. Of course, its general purpose is the reduction of tire troubles.

THE EXHIBITS IN DETAIL.

AJAX-GRIEB RUBBER COMPANY, Trenton, New Jersey; representative, Mr. J. L. Hoffman; showing Ajax tires guaranteed for 5,000 miles.

BATAVIA RUBBER COMPANY, Batavia, New York; represented by Mr. Ashton Wheeler Caney; showing the Batavia Security-Tread anti-skid tire.

CONSOLIDATED RUBBER TIRE COMPANY, New York, New York, Mr. T. E. Roberts, representative; showed a complete line of Kelly-Springfield tires. This company also displayed its block tires which seemed well adapted for heavy commercial work.

CONTINENTAL RUBBER WORKS, Erie, Pennsylvania, Mr. W. J. Surrey, representative; had a very interesting exhibit embracing the Continental-Erie tube, the Liberty tube, Continental-Erie aeroplane tire and repair materials.

DAYTON RUBBER MANUFACTURING COMPANY, Dayton, Ohio, represented by C. J. Cross & Co., 1878 Broadway, New York City, showed Dayton airless tires carrying a 5,000-mile guarantee.

DIAMOND RUBBER COMPANY, AKRON, Ohio, Mr. F. T. Lewis exploited its safety-tread tire, the special feature of which was its skid-preventing property. The Silvertown Cord tire was also one of the specialties shown.

DOUBLE-FABRIC TIRE COMPANY, Auburn, Indiana, represented by Mr. R. S. Murray, offered a variety of tires and repair devices.

EMPIRE TIRE COMPANY, Trenton, New Jersey, whose interests were represented by Mr. J. M. Shackelford, displayed four interesting exhibits, in the Clincher tire, straight-edge over-size tire, Empire red tubes and Empire tire reliner; all of which were receiving their full share of notice.

ENDURANCE TIRE AND RUBBER COMPANY, New Brunswick, New Jersey, E. W. Tabor, representative; displayed a guaranteed red inner tube, claimed to be of unusual wear-resisting quality.

FEDERAL RUBBER MANUFACTURING COMPANY, Milwaukee, Wisconsin, represented by Mr. Marcus Allen; made an interesting display, including its smooth wrapped tread tire, "Rugged" non-skid and Federal inner tubes, and sundries.

FIRESTONE TIRE AND RUBBER COMPANY, Akron, Ohio, Mr. Daniel C. Swander representative, had an interesting and well-attended exhibit, including the well-known Firestone tires, inner tubes, rims and accessories, of which the Firestone quick detachable demountable rim attracted unusual attention. Firestone truck

- tires need no introduction, and were shown in great variety, as adapted to every condition of commercial service.
- FISK RUBBER COMPANY**, Chicopee Falls, Massachusetts, Mr. J. J. Cuthron. These tires were shown in various types, and, incidental to this exhibit, a booklet entitled "Veteran Fisk Tires" was distributed. This showed photographs of the company's tires which had been run from 6,700 to 17,000 miles, on various makes of cars, and is an interesting and significant document.
- JAMES L. GIBNEY & BROTHER**, Philadelphia, Pennsylvania, showed Gibney Wireless motor tires and vulcanizers.
- THE B. F. GOODRICH COMPANY**, Akron, Ohio. This company's interests were represented by Mr. W. H. Yule, the New York manager of the company, who showed the usual excellent Goodrich product, specializing in their New Master Tread tire. Incidentally this company distributed a publication entitled, "Nine Prophets and a Host of Truly Wise Ones," which is an exceedingly informing pamphlet, devoted to the merits of Goodrich tires and the esteem in which they are held by their numberless users. And last but not least, they distributed "The Goodrich," a monthly magazine, which will undoubtedly appeal to those interested in automobiling and tire buying. This company's demountable truck tire assembled for service on a S. A. E. truck wheel, is certainly of substantial construction, and received much attention.
- GOODYEAR TIRE AND RUBBER COMPANY**, Akron, Ohio, Mr. J. B. Maus, representative, offered an attractive exhibit of Goodyear tires and repair materials, and incidentally put forth a booklet entitled "The Care of an Automobile Tire," which contains considerable information useful to tire buyers. This company also showed several distinct types of truck tires, certainly of promising appearance.
- HARDMAN TIRE AND RUBBER COMPANY**, New York, N. Y., represented by Philip R. Straus, specialized in Sure-grip tires.
- HODGMAN RUBBER COMPANY**, New York, New York, made an attractive display of cloth for covering automobile tops, of the well-known Hodgman brand, as well as an unusually attractive rubber tubing for gas feeds which was shown both in running and moulded lengths.
- LEE TIRE AND RUBBER COMPANY**, Conshohocken, Pennsylvania, known for many years as manufacturers of druggists' sundries, are now offering the Lee "Zig Zag" anti-skid tire and the Lee red and gray tubes. They specialize in the Jelco-Atlas inner case, which is guaranteed to be absolutely puncture proof.
- MOTZ TIRE AND RUBBER COMPANY**, Akron, Ohio, represented by Mr. P. E. Bertsch, specialized in the Motz high efficiency electric cushion tires, especially adapted for use on motor vehicles.
- L. J. MUTTY & COMPANY**, Boston, Massachusetts, Messrs. E. P. Murray and R. R. Gurney, representatives; exhibited auto top fabrics, high grade rubber cloths, etc.
- NATIONAL RUBBER COMPANY**, St. Louis, Missouri; demonstrated "Tire-new," a liquid rubber dressing for the preservation of automobile tires.
- NEW JERSEY CAR SPRING AND RUBBER COMPANY**, Jersey City, New Jersey, represented by Mr. R. R. Fields; showed their one cure wrapped tread tire, and the company's well-known special red inner tube. They were also showing their new Arcadia gasoline hose approved by the Underwriters' Laboratories. The purpose of this hose is the conducting of gasoline from pump to auto tank.
- NEW MASTIC TIRE COMPANY**, 68th street and Broadway, New York City, Mr. Orrel A. Parker, representative; offered a tire-filling for replacing air in pneumatic tires.
- PENNSYLVANIA RUBBER COMPANY**, Jeannette, Pennsylvania, represented by Mr. J. C. McCullough; specialized in its vacuum cup tire. This company also makes the Pennsylvania aeroplane tire, said to embody all the necessary requirements of such a tire, size 20 by 4 inches, and it is claimed that two of these will carry a 1,000 or 1,200 pound flyer.
- POLACK TYRE COMPANY**, Jeannette, Pennsylvania, represented by Mr. H. L. Stockbridge, the New England manager of the company, offered a line of truck tires made under a German license in an American factory. Their literature indicated a long service product, one set in use by an English concern being said to have covered more than 50,000 miles.
- PORTAGE RUBBER COMPANY**, Akron, Ohio, Mr. W. W. Wildman, representative; exhibited its "Daisy" non-skid tire, Portage inner tubes and truck tires. This company exploited its line of truck tires to a number of interested visitors.
- PRINCE TIRE COMPANY**, 1675 Broadway, New York City, showed "Prince" tires.
- REPUBLIC RUBBER COMPANY**, Youngstown, Ohio, represented by Mr. Webb Booth; displayed its black line red inner tube, and Republic Staggard tread, both of which attracted the interested attention of visitors. A booklet combining the stories of the black line red inner tube and the Staggard tread was distributed at the booth. The truck tires of this company are guaranteed to give 8,000 miles of service, and evidently offered much of interest to prospective truck tire buyers.
- RUSSIAN TYRE COMPANY**, Incorporated, 981 Eighth avenue, New York City (factory, Riga, Russia), represented by Mr. Otto Braunwarth; showed the Prowodnik Pneumatic tire, guaranteed for 4,000 miles.
- SEAMLESS RUBBER COMPANY**, New Haven, Connecticut, represented by Mr. H. G. Pagani, made an attractive offering of its Seamless non-skid tires, and Kanteek inner tubes. The company's booklet on "The Seamless Automobile Tire," seemed to have many interested readers at the shows.
- SHAWMUT TIRE COMPANY**, Boston, Massachusetts; exhibited an attractive line showing the company's wrapped tread clincher, Shawmut block tread, inner tubes, and Shawmut molded floating flap, made for the protection of the inner tube, and to prevent chafing caused by the rough edges of the old type of flap.
- STEIN-LAPLOCK TIRES**, Mr. C. H. Loewenthal, representative, showed an attractive line of the regular lap-lock tires, Stein inner tubes, and Stein-Laplock tractors. This exhibit also comprised the Stein-Laplock Dunlop Tire, claimed to have an unusually strong basis of construction.
- SWINEHART TIRE AND RUBBER COMPANY**, Akron, Ohio, was represented by Mr. E. O. Hoopengartner, who talked interestingly of the various types of tires and of the pure gum tube made by the company.
- UNITED STATES TIRE COMPANY**, New York, New York, was represented by Mr. E. S. Rowe. This company operates several plants making popular types of tires.
- VOORHEES RUBBER MFG. CO.**, Jersey City, New Jersey, displayed a very complete line of rubber automobile accessories, under the name of the Voorhees "Ideal" rubber specialties. One of the features was the "Period" pneumatic plug, claimed to repair a nail puncture in a tube in five seconds. In addition to this, they showed their "Ideal" line of inner casings, outside boots, bumpers, gums and fabrics.

A NEW WAY TO TEST TIRES.

THE Jacksonville, Florida, representative of the Consolidated Rubber Tire Co., of Trenton, New Jersey, recently gave the people of his city an impressive demonstration of the strength of the inner tube of the tire he represents. He took a 32 x 4-in. inner tube, attached one end to the rear of a car, and the other end to another car which, with four passengers, had a total weight of 2,500 pounds. He then started the first car and using the inner tube as a hawser pulled the other car with its passengers over 15 miles of the city streets.

BANQUET OF THE MOTOR ACCESSORY MANUFACTURERS.

ONE of the most successful and best attended trade banquets of the season was that of the Motor Accessory Manufacturers, held at the Waldorf-Astoria on the night of Thursday, January 11. There were more than four hundred present, and

there was no falling off of the festivities provided for their entertainment from start to finish.

The ceremonies were opened by Mr. H. T. Dunn, president of the Motor Accessory Manufacturers, who, after the formal opening, turned the duties of toastmaster over to Mr. James Clarence Harvey, the playwright, who said things which are not, ordinarily, published in Sunday School literature. His recitation of "Bohemia" seemed to appeal to the fancy of the diners, and helped to neutralize any icy blasts that may have blows in from outside.



HARRY T. DUNN.
President of the Motor Accessory
Manufacturers.

The first address of the evening was made by Mr. William E. Metzger, president of the National Association of Automobile Manufacturers, who spoke on the benefits of co-operative endeavor and urged closer bonds and more frequent gatherings of those interested in the automobile industry.

Following the remarks of Mr. Metzger, was a happy speech by Mr. J. Hartley Manners, who regaled the diners on "New Thought," in reference to the automobile as an agent in bringing humanity in closer touch with the beauties of nature. Colonel George Pope was also among the speakers, and addressed the guests in his usual happy vein, his remarks being, as they always are, very well received. Another speaker, James Schermerhorn of the *Detroit Times*, devoted his remarks to the "political uplifting" of Gov. Woodrow Wilson of New Jersey. Last, but not least, Creswell McLaughlin, "the schoolmaster of schoolmasters," in his customary vein endeavored to relieve the diners of any disposition to become too Bohemian, and to advise them of the continuous necessity of affording, by precept and example, a high moral atmosphere for the youth of the country.

The dinner was generally conceded to have been most effective in promoting fraternalism in the organization.

DONE BROWN.

A well-known member of the Santa Claus Committee of the Cincinnati Business Men's Club, of Cincinnati, having for its object the distribution of Christmas presents, is W. G. Brown, formerly president of the Cincinnati Rubber Manufacturing Co., and now a well-known rubber broker of Cincinnati. Incidental to the conclusion of committee work, Mr. Brown was tendered a dinner and a near-gold watch, in addition to being voted the most popular man in Cincinnati. Mr. Brown, so our advice states, twelve years ago became "father of the present movement," and, if all accounts be true, has been exceedingly successful in gathering in presents ever since.

THE RUBBER TRADE IN BOSTON.

(By a Resident Correspondent.)

THE rubber trade of Boston and vicinity seems to be in first class condition, and the outlook for the present year, just opening, extremely encouraging. In mechanicals a better feeling is manifested, and orders are coming in more satisfactorily. The manufacturers of druggists' goods have had a successful year, and this state of affairs still continues. The rubber footwear trade, which was very backward up to January, has picked up wonderfully during the month, owing to the advent of real winter weather. The clothing trade has had an excellent year, and many of the leading manufacturers could have done more business had their capacity been larger. One leading concern has built an extensive addition to its plant, and is now working with an increased output. The makers of tires are busy, many being turned out on contracts, and in anticipation of a very heavy demand as soon as the motoring season opens. The demand for crude rubber is fair, with indications of a steady increase from now on until spring.

* * *

The Boston Woven Hose and Rubber Co. has had a very successful season, especially so in the garden hose department. To keep up with the requirements of this branch of the business, the company has enlarged that department and made such improvements as to increase its capacity nearly, if not quite, thirty-three per cent. In November the office force was transferred to temporary quarters in one of the big concrete buildings of the plant, and the brick structure used as the administration building was completely torn out and the roof removed, and even the window frames taken away, leaving only the four outside walls. Since that time the workmen have been busy, and the building is gradually assuming shape. Great changes are being made, and the new offices promise to be most convenient and especially suited for the comfortable conducting of the great business of this company.

* * *

J. S. Capen, who has had charge of the selling end of the business of the Converse Rubber Shoe Co. since its institution three years ago, has severed his connection with that company. His announcement of that fact states that the change is made with the best of feelings toward the company, and the hope that its future success may equal or exceed its past, which, he says is "going some!" Mr. Capen has just completed his quarter century in the rubber footwear business, having served seven years with Sage & Co., nine years with the Enterprise Co., six years with the Beacon Falls Rubber Shoe Co., and three years with the Converse Rubber Shoe Co. He is not yet ready to divulge his future plans to your correspondent, but undoubtedly he will soon be heard from in the business in which he has so long been engaged, and for which he is so well fitted. He ought to be good for another twenty-five years' steady work; and he is, though perhaps before that time he will become so enthusiastic an automobilist that business can't hold him.

* * *

The Converse Rubber Shoe Co. gets out some snappy advertising. As it sells its product direct to the retailer, it has developed a scheme to get telephone orders. It gets out a little book, small enough to be hung close to the telephone in the dealer's store, which contains several leaves of perforated coupons, each good for the fee for telephoning the factory for ordering goods. The company keeps most of its stock at the factory, but delivers its orders by automobile truck. The customer is requested to fill out a coupon, putting in the blank space the amount charged for the call, and to enclose all the coupons with the remittance for the goods, deducting the amount of the coupon from the invoice. The plan has proven a business-bringer.

Another change in the rubber shoe trade in this city is the resignation of Chester J. Pike from the management of the Congress Shoe and Rubber Co. to engage in another line of business. Mr. Pike is known to the rubber footwear trade all over this country, having been connected with the United States Rubber Co. as its Boston selling agent for many years. He left that company some time ago, and connected himself with the first named company, taking special charge of the selling end of the line of rubbers handled by that house. He originated the selling plans, mapping out the advertising campaign which brought success to the concern, and drew to himself the attention of the A. W. Ellis Advertising Agency, with the result that a very flattering offer was presented to him to connect himself with that establishment. He will now devote himself to preparing and planning publicity campaigns, mainly for the footwear trade.

A recent engagement announcement is likely to interest the many friends of Charles A. Coe, of the United States Rubber Co., and Chester J. Pike, whose recent retirement from the rubber business is mentioned above. These two gentlemen have been business friends and residential neighbors for many years, and now Mr. and Mrs. Pike announce the engagement of their daughter, Louise Gerrish Pike, to Kersey Fell Coe, second son of Charles A. Coe. Mr. Coe is stationed at Kobe, Japan, where he occupies an important position with the Standard Oil Co. Your correspondent understands that Miss Pike will journey to Japan, where the wedding will take place early next autumn.

The making room of a rubber shoe factory may not generally be considered as Cupid's headquarters, but then again it might. Two groups of three sisters each keep house on the co-operative plan in Belmont, and five of them work in the factory of the Hood Rubber Co., while the oldest of the six runs the house and acts as chaperone. On New Year's Day all five of the shoe workers announced that they were engaged to be married in the not far distant future, and plans are already being formed for a quintuple, or perhaps a sextuple, wedding. Meantime, it is said, applications for positions are coming into the making department from spinsters of certain and uncertain ages who find in this announcement encouragement for hope that the fashion may become epidemic.

Ever since the first of October, Friday has been a red letter day with the Hood Rubber Company Organization, for on each Friday evening the teams representing the factory and Boston office gather at the Old Colony alleys and have a session with the pins. The freight department of the Boston office teams holds all the records, except the individual single, and also has the lead on points won, having won 45 out of 60. All the first division teams are having a warm contest. The prizes are individual silver cups, and the season will end March 1.

Mention was made in this letter last month of the fierce rivalry of the teams of the Rubber Tire Bowling League. The tournament goes on apace, and the scores are piling up to rather remarkable figures, and fond hopes are swelling several manly bosoms regarding the winning of the several prizes offered. At the time of writing this letter the score stood as follows:

	Won.	Lost.	Pinfall.
Goodyear	23	5	8,561
Goodrich	22	6	8,808
Swinehart-Rep.	15	13	8,174
Diamond	13	15	8,075
Kelley-Springfield ..	11	17	8,071
United States	10	14	6,770
Fiske	8	16	6,832
Firestone	6	22	7,792

Work has been begun on the new \$500,000 wing of the Museum of Fine Arts in this city, made possible by the gift of Mrs.

Robert D. Evans as a memorial to Mr. Evans, who was well known in the rubber trade. With the completion of this addition, which will measure 312 by 95 feet, the available space will be increased more than one-third, and this museum will rank among the most important in the western hemisphere. This vast building is in the immediate vicinity of another beneficence of a rubber man, namely, the Forsyth Dental Infirmary, some account of which was given in the INDIA RUBBER WORLD of November, 1911.

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The American Rubber Co. of East Cambridge has had an excellent sale for its clothing this season, and the outlook is for a continuance of this state of affairs. The lines for next season contain some few novelties in fabrics and patterns, but little change being noted in the styles of their garments, which seem to hit the popular taste exactly. The factory is running to full ticket, principally on orders.

The Boston Belting Co. has taken on two new agencies in the South. They are the Norvell-Wilder-Hardware Co., Beaumont, Texas, and the Reliance Machine & Supply Co., New Orleans, Louisiana. Both these houses will carry the specialties of the Boston Belting Co. in stock, a convenience which will be appreciated by users of these goods in these sections.

THE RUBBER TRADE IN AKRON.

(By a Resident Correspondent.)

THE GOODYEAR TIRE AND RUBBER CO. held their annual meeting in January, electing the following officers: President, F. A. Seiberling; vice-president, C. W. Seiberling; secretary, G. M. Stadelman; treasurer, F. H. Adams; assistant treasurer, W. E. Palmer; factory manager, P. W. Litchfield. The directors are as follows: F. A. Seiberling, C. W. Seiberling, F. M. Stadelman, F. H. Adams, P. W. Litchfield, J. P. Loomis, H. B. Manton.

The common stock of this company has increased over \$100 per share in the last two months and there are some sales as high as 307. They are paying 12 per cent. dividend on new stock.

Since December 1, 1911, the Goodyear company has opened the following branches with the following persons in charge:

	In charge of
Albany, N. Y.....	W. B. Moseley
Birmingham, Ala....	424 S. 20th St.....J. G. Caldwell
Charlotte, N. C....	225 N. Tryon St.....
Des Moines, Ia....	511 7th St.....F. C. Moyer
Denver, Colo.....	1562 Broadway.....S. E. Gillard
Omaha, Neb.....	2212 Farnam St.....T. V. Graves
Portland, Me.....	47 South St.....I. W. Penniman
Rochester, N. Y....	Court & Courtland St.C. L. Stackhouse
St. Paul, Minn.....	
Salt L'ke City, Ut'h....	123 E. 2d South St....J. C. Riley
Syracuse, N. Y....	413 S. Warren St.....H. H. Munday
Worcester, Mass....	671 Main St.....F. J. Redemann
Waco, Tex.....	614 Austin St.....J. H. Carlson
London, Ontario...	

The yearly statement of the Goodyear Tire and Rubber Co. shows total assets of \$6,953,768, outstanding capital stock, \$3,284,100 and surplus \$1,119,752.

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The officers of the B. F. Goodrich Co. for the ensuing year are as follows: Bertram G. Work, president; Frank H. Mason, vice-president; H. E. Raymond, second vice-president; Chas. B. Raymond, secretary and assistant treasurer; William A. Means, treasurer and assistant secretary.

The directors are: B. G. Work, F. H. Mason, H. E. Raymond, C. B. Raymond, W. A. Means and C. C. Goodrich. W. A. Means succeeds Geo. W. Crouse lately deceased.

The B. F. Goodrich Co., at their annual stockholders' meeting held January 17, 1912, in addition to the regular dividend of 12

per cent., declared a 20 per cent. extra dividend payable in preferred stock, and the extra goes to common stockholders of record as of January 6. This preferred will be dated January 17, from which time it will begin to accumulate dividends. Since a large amount of work is required in getting ready \$2,000,000 of stock, it may be two or three weeks before this preferred is ready for the stockholders. Parties holding broken lots of Goodrich common so that their dividend will not amount to a full share will receive a scrip certificate covering the fraction to which they are entitled. This scrip will only receive dividends when combined with others to make a full share. The company is not selling any of its preferred at present. The 20 per cent. dividend declared is all that is being issued at this time. Stock brokers figure that Goodrich common will hold at 250, first, because the price had advanced very little, as people did not believe the extra dividend would be declared; second, directors intimated that similar stock dividends may be declared out of the surplus earnings from time to time; third, 1911 was the most prosperous year in the company's history and 1912 prospects are as good if not better than those of 1911.

The B. F. Goodrich Company are actively pushing their work in the new plant at Colombes, France. Bertram G. Work, president of the company, has just returned from a trip to France in connection with the future of the Colombes plant. Irvin Renner, one of the department foremen of this company, together with several experts in rubber tires, are at present at Colombes placing matters in shape so that the Goodrich Company may be able to use their Colombes plant at an early date.

* * *

The Electric Reclaiming Co., capitalized at \$200,000, has purchased the buildings of the Carrara Paint Co. at Barberton and expects to reclaim rubber.

* * *

The Miller Rubber Co. has increased its capital stock from \$500,000 to \$1,000,000. The company expects to make changes this year so that it can greatly increase its tire output. The officers are as follows: President, Jacob Pfeiffer; vice-president, C. T. Grant; secretary and general manager, Wm. Pfeiffer; treasurer, F. B. Theiss.

This company's stock has advanced, selling at 141 this last week. This stock is figured on a 10 per cent. basis. Of the increased amount of Miller Rubber Co. stock, \$200,000 is offered to the stockholders at par, which is rapidly being taken up by the stockholders.

* * *

The O'Neil Tire Protector Co. has decided to open a branch office in Chicago. This company produces a bullet-proof protector.

* * *

The Diamond Rubber Co. reports the season of 1911 the best in its history with the largest output and the prospects of 1912 are even better. The company is in a better position to supply its trade and new service stations have been opened at Scranton, Pennsylvania; Worcester, Massachusetts; New Haven, Connecticut; and St. Paul, Minnesota.

O. J. Woodard, an old employe of this company, who has had charge of the solid tire department, has resigned to become general sales manager of the Woods Motor Car Co., of Chicago. On January 19, his associates at the Diamond Co. gave him an informal lunch and a diamond stickpin.

The inclement weather for the last six weeks has made the boot and shoe department very active.

* * *

Mr. Harry Quine, editor of the Akron "Times-Democrat," has resigned his position on that paper to become publicity agent of the Goodyear Tire and Rubber Company. Mr. Quine is a man of experience in newspaper, magazine and publicity work, and

the Goodyear Company can compliment itself on securing the services of this capable man.

* * *

Glenn H. Curtiss, who is at Los Angeles, California, is making experiments with a hydroplane with which, when improved, he expects to cross the Atlantic. He is using Akron Fabric and it is stated that he places his motor in the pontoons connected with his aeroplane.

* * *

Harry N. Atwood, the celebrated aviator who made the initial long distance flight, from St. Louis to the Atlantic coast, has been in Akron looking up material for a new aeroplane. It is reported that he has an improved machine about to be patented. It is claimed that Mr. Atwood is preparing an aeroplane with which to cross the Atlantic and that the Goodyear Tire and Rubber Co. has agreed to make special pontoons which Atwood expects to test out on his exhibition flights along the coast, so that they can be used in trans-Atlantic flights. Mr. Atwood says, "I positively do not intend to quit flying. I am going to keep on flying as long as I live. I like the sport and can make more money at it than at anything else. I have contracts that will keep me busy until summer and I expect to make the trans-Atlantic trip." Mr. Atwood says that each pontoon will be of rubber and have 30 cubic feet capacity. Two pontoons will support 3,600 pounds on the water and his machine weighs only 1,100 pounds.

Mr. Atwood gave a lecture to the Technical Club of the Goodyear Tire and Rubber Co. in which he gave many incidents from his own experience in the air.

* * *

He also stated that the fact that aeronauts were able to make their machines remain perfectly still in the air was brought about as follows: No aeroplane can keep in the air unless it is moving at the rate of 30 miles an hour at least, or when driven by a wind at the rate of 30 miles an hour or over. When an aeroplane is along a hillside and air currents are coming up the hillside at 30 miles an hour or more, the aeroplane will keep the same relative position and consequently appears to be perfectly still.

Mr. Atwood uses a Wright machine and Goodyear fabric.

* * *

Professor Lawrence Rotch, of Harvard, Director of the Blue Hill Meteorological Observatory, is quoted as saying that he believes it feasible to cross the Atlantic in a dirigible balloon. He doubts if the aeroplane is sufficiently perfected to make the trip. He says, "The Atlantic Ocean can be crossed in a dirigible balloon in one to two days less than by the fastest steamboat. This balloon must be capable of maintaining a speed of 25 miles an hour at an altitude of one-half mile. The trip can be made in either direction, either from Boston to London or from the latter city to the Hub. I have compiled maps showing that this is correct."

THE RUBBER TRADE IN RHODE ISLAND.

(By a Resident Correspondent.)

THE months of December and January were a period of uncertainty for the rubber business in this section of the country, several mills curtailing, one going into the hands of a receiver and another closing down for a week for an early stock taking, because of the dullness of trade. The stormy weather in the early part of January, however, with other causes, brought a return of business, and for a time plants ran briskly.

During the first week in January the National India Rubber Company's plant at Bristol closed for stock taking, thereby throwing the force, numbering about 1,400 persons, temporarily out of work. On Monday, January 8, several hundred went back to work in the calender, cutting and other departments, and more departments were opened the next day. The entire force

was back on the 10th of the month with, however, a slight decrease in the shoe and gaiter tickets.

* * *

The prevailing dullness of the trade caused the Alice Mill, in Woonsocket, and the Millville Mill, in Millville, Massachusetts, both controlled by the Woonsocket Rubber Co., to go on a five-day-a-week schedule the week of January 8. The change affected 1,400 hands in the former and 600 in the latter. Officials of the Woonsocket concern announced at the beginning of the curtailment that they believed the period of the same would be of short duration. The curtailment continued until January 19, when both mills closed temporarily, the date for reopening being set for February 12.

* * *

The Consumers' Rubber Co., Bristol, which employs 350 persons, is now in the hands of a permanent receiver as a result of court proceedings which Terence McCarty, manager and principal stockholder in the concern, started December 27, last, as a result of lack of ready funds with which to carry on the business.

Mr. McCarty petitioned the Superior Court in Providence for the appointment of the receiver, fearing attachments which would ruin the business. This was followed by the placing of an attachment on Mr. McCarty's real estate, located in Bristol, by Tobias Burke, of Providence, a creditor of the company. The amount named in the writ was \$7,500. The following day Presiding Justice Tanner ordered the company to close its plant, pending a hearing on January 3. At that hearing George H. Kelley, of Providence, who had been acting as temporary receiver under a bond fixed at \$20,000, was replaced by Robert S. Emerson, of Pawtucket, as permanent receiver. Lawyers representing creditors in Boston and New York as well as Providence consented to this arrangement.

The plant was closed for several days while Mr. Emerson was taking account of stock and preparing a report upon which plans for conducting or closing the business could be based. On January 8 he secured permission from the court to open the plant for the purpose of finishing the stock on hand. This took three days.

The report filed by Mr. Emerson on January 10 showed the following assets: Real estate, as carried on the books of the company, \$50,000; machinery, \$65,000; inventory of merchandise, as taken by the receiver, \$71,709.67; crude rubber, as pledged to and in the possession of the American Electrical Works, \$12,862; crude rubber, held by the Blackstone Canal Bank under an agreement, \$34,000; an equity in book account, assigned to the Mercantile Advance Company, \$14,843.18; 25,000 yards of duck at the Enterprise Dye Works, Woonsocket, \$4,687.50; accounts receivable, \$1,115.29; accounts payable, showing a debit balance, \$82.34; cash on hand, \$112.59.

Under the head of liabilities the receiver included a mortgage on real estate for \$19,000; promissory notes, for which some form of security was held by payee, \$60,000; notes payable for merchandise, \$103,089.50; unsecured notes payable for cash loan, \$69,336.58; accounts payable, \$106,689.72; accounts receivable, showing credit balances, \$63.60. Total, \$358,679.40. As he placed the total assets at \$254,412.57, there was left a deficit of \$104,266.83. While preparing the report Mr. Emerson sold \$2,500 worth of merchandise for cash and shipped \$5,000 worth more.

This report was so satisfactory to the creditors and Court that Mr. Emerson was given authority to reopen the plant. He did so on January 15. For a start, 50 cases of gum shoes and 100 cases of tennis shoes were turned out daily. The output is to be increased gradually as business develops.

* * *

It is estimated that 15,000 persons attended the opening night of the first automobile show of the Rhode Island Licensed Auto-

mobile Dealers' Association at the State Armory, Providence, January 22. The show continued until January 27. The armory has a floor space as great as Madison Square Garden, New York.

The decorative scheme was the most elaborate ever seen in this city. Nine thousand square yards of blue cloth studded with incandescent lights were suspended on the steel girders 90 ft. high, and 1,900 lineal feet of lattice work with several carloads of smilax were used. The display included 51 makes of pleasure cars, 12 of commercial trucks and a host of accessory dealers and tire manufacturers. Various kinds of anti-skid tires attracted crowds while demonstrators explained their features.

* * *

Colonel Samuel P. Colt ended a two-year fight with Cyrus P. Brown, president, and several directors of the Industrial Trust Company, Rhode Island's leading banking institution, at the annual meeting of the organization, held January 16, by ousting him and electing his own candidate for the position, H. Martin Brown. He also defeated all his opponents who were seeking re-election to the Board of Directors, and succeeded in having himself made a member of the executive committee along with several friends.

At a meeting the following day, H. Martin Brown was chosen president and Colonel Colt, Charles C. Harrington, James M. Scott, Eben N. Littlefield, Ezra Dixon and Samuel M. Nicholson were made members of the Executive Committee.

This ends a struggle which began when Colonel Colt resigned the presidency in 1908 during a protracted illness. He is now in undisputed control of the banking institution which he founded nearly a quarter of a century ago. It has several branches in various parts of Rhode Island and controls a large capital.

* * *

Colonel Samuel P. Colt is one of the principal contributors to a one million dollar endowment fund which is being raised in this city by Brown University. He boosted the total by \$25,000 on the morning of January 23.

* * *

The American Wringer Company at Woonsocket has purchased 110,000 square feet of land in the center of that city, known as Clinton Oval, for the purpose of providing storage space and room for an addition to the plant at a future date. It is understood that the officials of the concern are in favor of centralizing the business at Woonsocket, and that they intend to close their plant at Auburn, New York, within a year or two.

* * *

Considerable interest was aroused among officials and employees of rubber plants in Rhode Island recently by the announcement that the United States Rubber Company had in contemplation a system of profit-sharing similar to that in operation among the employees of the United States Steel Corporation. Several years ago the United States Rubber Company drew up a plan allowing employees subscription rights to the common and preferred stocks. It is expected that the new profit-sharing plan will be approved and made public at the directors' meeting in February.

* * *

A basketball team made up of employees of the Consumers' Rubber Company is providing the inhabitants of Bristol, Rhode Island, with lively entertainment these days.

* * *

It was announced at the plant of the National India Rubber Co., Bristol, Rhode Island, January 24, that the druggists' sundries, hose and mechanical fabric departments of the plant are to be closed and moved to Cleveland, Ohio. About 600 employees are effected.

The plant at Bristol is to be used in the future exclusively for the manufacture of rubber shoes and insulated wire.

Information as to the change came as a surprise to the employees of the company. The work on hand will be run out and

it is expected that the departments will be closed by the last of March. The lines which are to be discontinued have been manufactured by the Bristol company, which is a subsidiary of the United States Rubber Company, for 40 years.

* * *

Colonel Samuel P. Colt was a guest at the wedding of his niece, Miss Elizabeth Linda Colt, daughter of United States District Judge Le Baron Colt, and Mrs. Colt, on the afternoon of January 17, to Andrew Weeks Anthony of Boston.

THE RUBBER TRADE IN TRENTON.

(By a Resident Correspondent.)

THE L. M. ANDERSON CO., which was incorporated in this State this month with a capital stock of \$60,000, with shares at \$100 each, has acquired the old Titus Woolen Mills' property for the purpose of manufacturing raincoats and other rubber garments for men and women. The corporation is installing machinery, and the work of making garments is to be started next week. The company expects to give employment to half a hundred persons at the start, and later it is the intention to increase the working force to one hundred or more. Sample garments are now being manufactured in New York City. The promoters of the enterprise are well-known Trenton business men, including W. O. Anderson, treasurer of the New Jersey Pulp Plaster Co.; Arthur J. Anderson, of the same concern, and former treasurer of the Essex Rubber Co.; A. W. Lee, E. O. Machlin, formerly with the Ajax-Grieb Rubber Co., Trenton, and Howard A. Lee. The latter and W. O. Anderson are to be the active heads of the concern. Arthur S. Schragger, for many years connected with the Kenyon Raincoat Co., of Brooklyn, is to be the superintendent of the plant.

* * *

J. B. McKay, Chicago and western representative of the Empire Rubber Co. and the Empire Tire Co., visited the Trenton factory the past month for the purpose of getting in closer touch with affairs of the companies. Mr. McKay was not idle during the two weeks he was in this town, but put in from eight to ten hours a day at the plant.

* * *

The exhibit of the Empire Tire Co. at the auto shows in the Garden and Central Palace, New York, the past month, resulted in the booking of many orders for this excellent tire. Boyd Cornell, secretary of the company, was responsible for the big exhibit at both shows.

* * *

General C. Edward Murray was last week re-elected president of the Empire Rubber Co. and the Empire Tire Co. Boyd Cornell was re-elected secretary of the above-named concerns.

In addition to his large interests in the Empire concerns, General Murray is the controlling factor in the Crescent Belting and Packing Co. and the Crescent Insulated Wire Co.

* * *

The Endurance Tire and Rubber Co., of New Brunswick, has filed a certificate with the Secretary of State, changing the par value of its capital stock from \$100 to \$25. As there are 1,000 shares of the stock, this will result in a reduction of the authorized capital from \$100,000 to \$25,000. The corporation was chartered in 1910 to manufacture all kinds of rubber goods. The consent to the change was signed by all stockholders.

* * *

R. T. Elwell, of this city, president of the Elwell Rubber and Insurance Co., of Claremont, N. H., manufacturers of rubber specialties, has given the letter carriers of the Trenton Postal district rubber heels for their shoes.

Mr. Elwell hopes to secure the endorsement of the hundred or more carriers of this city with a view of having the Government

adopt the rubber heels as a part of the uniform equipment of the letter carriers.

* * *

The officers of the Thermoid Rubber Co., New York, were re-elected at a meeting of the directors recently in this city. The officers are: Joseph Oliver Stokes, president; Fred S. Wilson, vice-president; W. J. B. Stokes, treasurer; Robert J. Stokes, secretary.

Vice-President Wilson attends to the western end of the company's business, which materially increased the past year. The concern's output of automobile tires finds favor with autoists everywhere.

* * *

Watson H. Linburg, president of the United and Globe Rubber Company, was re-elected to the board of directors of the First National Bank, the Inter-State Fair Association and the Lotus Club recently. Mr. Linburg announces the engagement of his daughter, Emma, to Horace B. Tobin, of this city.

* * *

The new \$200,000 home of the Wilbur Young Men's Christian Association, founded by the late Edward Grant Cook and his brother, George R. Cook, of the Hamilton Rubber Manufacturing Co., was opened to the public last month.

* * *

John H. Broughton, vice-president of the United and Globe Rubber Manufacturing Co., is on the directorate of two banks—the Mercer Trust and Trenton Trust and Safe Deposit Co.—the School of Industrial Art, the Inter-State Fair Association, Mercer Hospital, the Lotus Club, the Trenton Country Club and various other organizations and corporations.

THE RUBBER TRADE IN CHICAGO.

(By a Resident Correspondent.)

REPORTS of conditions in the rubber industry received in Chicago from the west were never brighter. From all of the Chicago concerns and agencies comes the declaration that January was one of the best months for the trade, largely on account of the weather. With the Milwaukee automobile show over and preparations going on for the Chicago show, tire men have been extremely busy attending the one and looking forward to the other, as well as taking flying trips to New York to get a line on what 1912 is going to bring forth in the way of tires and inner tubes. Salesmen traveling out of Chicago and making the principal cities between here and the Pacific coast report business as remarkable.

On top of all this, Chicago will be placed on the map in the near future as a tire manufacturing city. George B. Dryden, president of the Dryden Hoof Pad Co., is going to build a new factory this spring and enter the tire game. The company, which at present has its plant located at West Twelfth street and Forty-sixth avenue, has acquired property on the southeast corner of the intersection of Forty-third avenue and the tracks of the Baltimore & Ohio Chicago Terminal Railroad, on which a building will be erected shortly. Work will be begun about April 1. The tract of land contains 59,000 square feet, and is situated in the heart of the large West Side manufacturing district. Besides their patent hoof pad and rubber shoes, the company will manufacture both pneumatic and solid rubber tires.

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As yet no one has been appointed by the Republic Rubber Co. to take the place of J. H. Kelly, formerly Chicago manager, who was recently made manager of tire sales by President Thomas L. Robinson. Mr. Kelly is now located at the general offices of the company in Youngstown, Ohio, in an advisory capacity, during the absence through illness of Mr. Lomasney, vice-president and general sales manager. Mr. Kelly will also be associated with F. P. Best, former New England manager for the company, who

was made manager of mechanical sales on January 2. Mr. Best will also be located at the general offices. H. W. Bixler continues in the capacity of assistant general sales manager.

C. C. Murray, who left the Duck Brand Co. six years ago to enter business for himself at Rockport, Indiana, was welcomed back as a member of the selling force of his old company last month. T. O. Vance, formerly with the Beacon Falls Rubber Shoe Company, 307 West Monroe street, has also accepted a position as salesman for the Duck Brand Company. Mr. Vance was succeeded by A. L. Shimp.

* * *

The Stearns Rubber Co. is busy moving into the new quarters on the first floor on the southeast corner of West Jackson boulevard and Market street. The new office will be one of the most spacious and best appointed in the rubber industry in Chicago. With an artistic lighting system and equipped with new office furniture, the office has four entrances, one on the corner, one on each street, and a fourth through the main corridor of the building. Large plate-glass windows extending from the high ceiling almost to the floor form the two street sides of the room and assure more than ample light during the day, which is a rare feature in the downtown district of Chicago, where electricity is necessary both day and night in a majority of the offices.

* * *

With the approach of the automobile show, tire talk is the burden of discussion among those interested in this branch of the rubber trade. E. B. McKay, Chicago manager for the Empire Rubber Manufacturing Co., 1305 Michigan avenue, was one of the enthusiastic forecasters of the greatest year in tire history.

"As at the New York show we will exhibit our new type of round tread, straight side and clincher tires," he said. "We shall also make a special showing of our Peerless red inner tubes, which are the highest priced and of the highest grade on the market today. The rubber department of the coming automobile show will surpass any similar exhibits heretofore shown in the Middle West, and for Chicago this year we predict a season in the tire industry that will eclipse even the fondest speculations of the manufacturers."

George M. Munsa, who covers the entire territory west of the Mississippi river for the Empire company, has started on his thirty-day trip to the coast during which he will take in every city of any considerable size. In his reports so far he characterizes trade conditions in the West as excellent.

* * *

"At the coming show we shall exhibit our tires that have made the best showing on all cross-country runs," said S. H. Tierce, manager of the Chicago branch of the Ajax-Grieb Rubber Co. "We shall have booths Nos. 26 and 27 in the gallery at the Coliseum, where the rubber goods will be displayed. There the customers will be given a chance to size up the worth of our 5,000-mile guarantee which is predicted on so many pounds pressure for each certain size of tire. If motor car owners would look more closely into the matter of air pressure they would get more mileage from their tires.

General Manager J. C. Matlack of the Ajax-Grieb company will be one of the visitors at the show.

The Motz Tire and Rubber Co. is boosting the Motz non-skid tire, which has recently received such a large number of indorsements from users of light trucks and vehicles built for speed as well as service. The Motz people report a 500 per cent. increase in the sales of their cushion tires during the last year, and this will be the main feature of their exhibit. The Anderson Electric Car Co., of New York, in a letter praising the Motz tire, said that the Harlem ambulance thus equipped was able to skim along the boulevards and streets of the eastern city during heavy falls of snow, while other cars were slipping and sliding about in an almost helpless condition.

Directors of the Chicago Motor Club have announced that they will keep "open house" for all automobile and tire men during the national automobile show at the Coliseum, January 27 to February 10. Guest cards will be issued to manufacturers and dealers in attendance at the show, affording the recipients full privileges of members of the Motor Club.

THE RUBBER TRADE IN SAN FRANCISCO.

(By a Resident Correspondent.)

CONDITIONS are shaping up well for a bright outlook commercially. The new mayor, James Rolph, has taken office together with a new Board of Supervisors, and in these new officials the people have the greatest confidence. It has been a long time since San Francisco has pulled together as a unit, but now it appears that such a thing is most likely, especially with the Panama-Pacific Exposition coming on, and if this is the case there will be greater development in the city within the next four years than ever occurred during a like period. In the meantime the country districts are quietly but very rapidly increasing in population, and farming is getting more concentrated and productive all the time. Business men believe that an era of marked prosperity is in store for the Pacific coast.

* * *

The Republic Rubber Co. has incorporated its business for the purpose of better handling it on the Pacific coast. It is incorporated as the Republic Rubber Co. of California, with its principal place of business in San Francisco; being registered with a capitalization of \$20,000, the shares being \$100 each, of which full amount has been subscribed. The incorporators are: M. E. Murray, T. W. Swift and Neal Power.

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Austin Kanzee is no longer connected with the Republic Rubber Co. He now has the agency for the Kelly Springfield tires, which he is busy selling on the coast.

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The United States Tire Co. has opened its fine new store on Van Ness avenue, and the splendid edifice is without doubt one of the finest of its kind devoted exclusively to the tire business. The building extends from Turk street to Elm avenue, along Van Ness, and is two stories high. The Van Ness frontage is of classic Greek design, with four large Ionic columns. The lower floor of this section of the building is to be devoted to the use of the San Francisco branch salesroom and offices. On the second floor are the general offices of the western district, the division of the U. S. Tire Company which controls and supervises all branches and agencies from Denver west. The tires distributed are the Hartford, the Morgan & Wright, the Continental, the G. & J. and the United States tire brands, including the Nobby Treads. This jurisdiction also extends over the western part of Canada, Mexico, South America, the Hawaiian Islands, Australia, the Philippines and the Orient as far as India. J. C. Weston, the Western District manager, is visiting the factories in the eastern States.

* * *

The Gorham-Revere Rubber Co. made a number of changes in its employes in the San Francisco store. The firm is getting thoroughly organized for a big campaign during the coming year.

* * *

The difficulty which the city of Seattle, Washington, has been experiencing in the matter of securing 20,000 feet of fire hose, has at last been settled. The city has awarded the contract to a local concern in Seattle. The contract calls for 20,000 feet of 2½-inch hose made to very particular specifications. These specifications, gotten up specially for the city of Seattle to experiment on, had to be amended four times before any of the responsible rubber companies were willing to even undertake

the manufacture. The Board finally secured several bids on the much-amended specifications. Even now serious doubts are entertained by high-grade manufacturers as to the dependable service that can be secured from a hose purchased at 66 cents (the price made by the successful bidder) for the size and extent of a fire department like that of the city of Seattle, when such a possible immense risk by fire is taken into consideration.

The Gorham-Revere Rubber Co. gave a very successful, enjoyable and instructive entertainment and banquet last week to its traveling salesmen who cover the California territory. The banquet was held at the Bohemian Club, and each one present was presented with a handsome scarf pin as a memento of the occasion. The speeches made to the salesmen were instructive, and the entire affair was so successful that similar meetings will undoubtedly hereafter become annual affairs. Some 28 men attended the banquet.

J. B. Brady, of the Gorham-Revere Rubber Co., is now in the east on a business trip for the firm.

The American Rubber Manufacturing Co. is putting the finishing touches on its new factory building at the works across the bay at Emeryville.

Arthur Ralph, who had charge of the branch retail tire store of The B. F. Goodrich Co. on Van Ness avenue, is no longer connected with that firm. Mr. Miller, in charge of the mechanical department of the B. F. Goodrich Co., has returned from his recent visit to the factory.

The Pacific States Rubber Co. has recently been incorporated with its principal place of business at Portland, Oregon.

Mr. Louis Thompson, formerly a traveling jewelry salesman, has taken a position as traveling representative for the Western Tire Co.

The Pneumatic Clutch Co. of Oakland, California, has increased its capital stock to \$500,000.

George E. Starr and H. A. Forbes, for themselves and backed by certain eastern capital, have purchased from H. R. Keaton, of this city, his patent non-skid tire. Mr. Starr has left for the east where he will make arrangements with the Swinehart Tire Company for manufacturing tires with this tread.

LIVERPOOL RUBBER FLUCTUATIONS 1911.

WHILE the fluctuations of rubber in the Liverpool market during 1911 were less marked than in 1910, they were in the earlier part of the year relatively varied in character. According to the annual report of Messrs. William Wright & Co., following a decline, the price of fine Pará recovered by the end of January to 5s. 8d. During February, a further advance took place to 7s. 1d. The next ensuing months witnessed in general a fall; prices ranging as follows: March, 7s. to 6s. 3d.; April, 6s. 2d. to 4s. 9d.; May 5s. 4d. to 3s. 10½d. June was steady without much change. July ranged from 4s. 0½d. to 4s. 9d.; reaching in August 4s. 11½d.; and in September, 5s. In October a reaction took place to 4s. 3d.; November closed at 4s. 5d.; and December at 4s. 3½d. The existence of the speculative stock held in Brazil is a factor constantly being taken into consideration in Europe. While some reports indicate a willingness on the part of the financial interests affected, to support the market by purchases of new crop rubber, opinions have been expressed that the sooner the stock in question is cleared off the better for both holders and consumers.

GERMAN RUBBER GOODS INDUSTRY IN 1911.

WHILE German industries in general enjoyed relative prosperity, and the requirements in technical and mechanical rubber goods were proportionately extensive, manufacturers of the latter products found prices affected by the existing keen competition for business, which led to orders being considerably split up. The strikes and lock-outs in several important branches served to restrict purchases of rubber goods.

Some branches of the German rubber goods industry materially profited by the exceptionally high summer temperature, while others suffered from the same cause. Among those benefited were the hose manufacturers, as well as the producers of articles connected with outdoor sports and motoring. Prominent in the latter category was the pneumatic tire industry, which was debarred from profiting through the favorable weather conditions, by the efforts of foreign manufacturers to obtain at any cost the control of the German tire trade. This situation was all the more difficult for German manufacturers, in view of their having large stocks on hand of high-priced rubber.

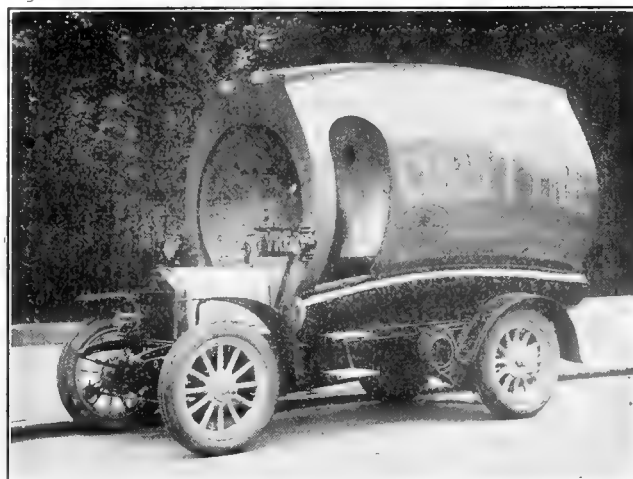
Rubber clothing was depressed by the weather, while stocks of rubber shoes have in many cases been carried over by dealers. Business in elastic webbing was quiet, which situation reacted upon rubber thread.

Owing to the unprecedented dryness of the summer, German hose manufacturers had a record year. Customers were clamoring for goods. Business continued relatively active to the end of the year, and manufacturers are hoping for good times in 1912.

Business in articles for aviation was quiet throughout 1911, the numerous accidents having diminished the interest shown by the public. The opinion has been expressed that some time will elapse before aerial traffic will become an accomplished fact. Its immediate future seems to lie chiefly in a military direction.

AN ENGLISH TIRE VAN.

We recently illustrated a tire van used by one of the large English companies in a very effective form of advertising. The originators of the tire van are said to be The Palmer Tyre, Limited, of London. This company has had such a van on the streets



A PALMER TYRE, LTD., VAN.

of London for several years, and in addition is using one now in France and one in Italy. The accompanying cut shows its latest vehicle of this sort. It is effective advertising, and just as convenient for use as any other motor car.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and compounding Ingredients."

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

UNSATISFACTORY and in many cases disastrous reports issued by plantation and other rubber companies floated in the boom-time of 1910, have become so common of late as hardly to attract notice, except among those financially concerned. That this state of affairs should be reflected in the case of many

TRADING RESULTS.

old-established rubber manufacturing concerns where reports were issued in December has caused surprise to many people who do not appear in the respective companies' lists of shareholders. This set-back in profits has affected not only small works but concerns like those of the Dunlop Rubber Company, Limited, and India-Rubber, Gutta-Percha and Telegraph Works, Limited, of Silvertown, the shares in which are widely held. The main cause in the decline of profit is probably much the same all round, i. e., the purchase of raw rubber in advance at high prices, and the subsequent inability to get a corresponding increase of price for the finished goods. Many manufacturers have been hit by contracts under which the delivery of same extended over twelve months. Labor troubles have also in many cases proved a source of loss, strikes having occurred not only in the rubber works, but among railway and carting employees, causing dislocation of trade.

At the various company meetings where losses have had to be explained, the respective chairmen have sought to console their audiences by laying stress on the losses incurred by the other companies, and by hinting that all may not be too well with those private companies whose accounts are not made public property. The announcement by the Dunlop Rubber Company's chairman of an impending new issue of shares to finance an entirely new department was not too well received, the market value of the shares having experienced a further small decline.

THE somewhat belated Board of Trade enquiry into the explosion of a devulcanizer at the North-Western Rubber Company's works at Liverpool on October 4, 1910, was held early in December last at the Chancery Court, Liverpool. One

EXPLOSION OF A DEVULCANIZER.

man was killed by the explosion. In the course of the enquiry the commissioners visited the works and had the process explained to them. A good deal of evidence was given in court but it would take up too much space to comment on that at length. The commissioners found that the explosion was due to hydrostatic pressure on account of the devulcanizer having been filled too full with the caustic soda solution. Moreover they found that Dr. Torrey and his subordinates had no idea that dangerous hydrostatic force could be expected in a boiler of that kind. They were therefore not to blame for the accident and none of them would be called upon to pay any part of the costs of the inquiry. At the same time it was said that the devulcanizers at the works should be kept under better supervision by the engineer in charge and not left so much to subordinates. The first six devulcanizers were made in America and the last two in England from the American drawings, it being one of the latter that exploded. Questioned on the subject of a safety valve Dr. Torrey expressed himself as against its use, it being a source of danger rather than of safety, though the commissioners said that in their opinion some safety appliance was imperative and such safety appliance must be automatic.

It is satisfactory that the cause of the explosion seems to have been definitely ascertained, because it will bring home to rubber manufacturers a source of peril of which they had hitherto been ignorant. I am not enough of an engineer to say whether there is real justification for any such ignorance on the part of engi-

neers of experience. The devulcanizer was regularly inspected by the Vulcan Boiler Insurance Company, Limited, but it did not come out in evidence that they issued any warning as to the danger of overfilling. Perhaps, however, any such advice might have been resented as going beyond the limits of inspection. It now remains for those rubber works which utilize the process of vulcanizing in hot water to give careful instructions that the pan must not be filled beyond a certain point. The insurance company I may say was not a party to the inquiry, but offered to give evidence through its engineers. With regard to the safety-valve question I may refer to the matter again when the Board of Trade report is issued, these reports not always corresponding exactly with the judgment given in court. I understand that a sort of arrangement was reached in court that Dr. Torrey and a Board of Trade engineer should put their heads together to see what is feasible in the way of a safety-valve.

MESSRS. SIEMENS BROS. & CO., LIMITED, have built new works adjoining their cable factory at Woolwich, this being necessitated by reason of the development of their rubber insulated wire business in recent years. The capacity of the new works

ENLARGEMENT OF WORKS.

is 8,000 miles of insulated wire and cable per annum, in addition to tapes and ebonite. The total floor space covers three acres, the windows occupying 40 per cent. of the space of the side walls. The six new washing machines are driven by a 95 h. p. motor, this being one of the first firms to adopt electrical driving for rubber machinery—which occurred a good many years ago.

SAMPLES are being shown of solid tires said to be made entirely of reclaimed rubber and it is predicted that a great development

RECLAIMED IN TIRES.

in the use of rubber tires on steam motor wagons is imminent. Under a national regulation which applies to the whole country the speed of steam motor wagons in towns is limited to 5 miles an hour with steel tires, and 12 miles an hour with resilient tires. I understand that a tire made of reclaimed rubber has recently stood the ordinary commercial guarantee of a 10,000-mile run with quite satisfactory results. The saving in first cost is put at 75 per cent. of the cost of new rubber tires, thus bringing the price low enough to cause rubber tires to be largely used in the extensive steam transport business now observable in our manufacturing centers.

I SEE that a patent for desulphurizing and devulcanizing rubber has been granted to W. W. Wildman and James Christy, Akron, Ohio, the processes involved being the time-honored ones of acid and alkali treatment, the novelty presumably being

DEVULCANIZING PATENT.

in the use of each treatment one after the other on the same lot of vulcanized rubber. I notice that the majority of patentees use the expression "devulcanization" freely, though I have never yet come across any of these reclaimed rubbers which really were devulcanized. True, they have been desulphurized as far as the removal of their free sulphur is concerned, but this is not devulcanization. Certainly the present patentees do not go as far as some have done and claim that the rubber which has undergone their process is equal to new rubber, and can be used for the same purposes. They do, however, state categorically that it is devulcanized, a term which evidently has more than one significance. It is very generally the case that reclaimed rubbers contain more combined rubber than they did prior to the reclaiming process, though their free sulphur content may be practically nil. The present patentees treat the finely divided rubber with a hot 6 per cent. solution of hydrochloric acid for one hour, wash out

the free acid and treat under pressure with a 3 per cent solution of sal-soda (presumably the carbonate) or caustic soda, which they say facilitates the ultimate result very materially. The temperature of treatment is 310 to 335 degs. F. and the time three to five hours.

The acid treatment *inter alia* rots the canvas and the alkali finally removes it. Except that the time is much shorter, there does not seem any particular difference in the latter part of the process from Marks' patent, as worked by the North Western Company, Limited, at Liverpool, nor in principle from Price's patent, worked by the Rubber Regenerating Company, Limited, at Manchester. On the face of it, it would seem by the granting of this new patent that any one can use the alkali process as long as he follows it or precedes it by some other process of more or less utility. This is an interesting supposition, and one that is not without importance to large commercial interests. The resultant rubber by the new process should have a high rubber content, as the acid will remove much of the fillers and the alkali the resins and substitutes.

Mr. Maldwin Drummond, who a few months ago retired from the directorate of the Crude Rubber Washing Company, Limited,

PERSONAL MENTION.

has been elected a member of that very exclusive club the Royal Yacht Squadron. He is a member of the Drummond

family so long known in connection with banking in London, and is married to the widow of the son of Mr. Cyrus Field, whose name and achievements will, of course, be familiar to American readers. Mr. Drummond had for some years been prominently associated financially with the British Murac Company, Limited.

Mr. T. Hallas has severed his connection with the firm of T. Hallas & Co., Limited, of Cinder Hill, Todmorden, Lancashire, which he founded a few years ago for making reclaimed rubber and substitutes. He has joined the Haycliffe Rubber Company, of Great Horton, Bradford, as a partner with Mr. A. Crowther, and he intends to enlarge the works and take on the manufacture of other rubber goods than the heel pads, which are now the principal output of the company.

Messrs. W. H. Veno, T. Jackson and H. B. Rudolf have been elected additional directors of the Gorton Rubber Co., Limited. They are all well-known local commercial men, having substantial holdings in the company.

LONDON RUBBER NOTES.

(By a Special Correspondent.)

THE ARMY AND NAVY STORES.

AT all the important shopping centers in any leading town, the public should be able not only to purchase time-honored lines, but to inspect a wide range of the latest novelties in such classes of goods as these emporiums make it their business to supply.

"But think how valuable is every inch of our show-rooms and stock-rooms," I seem to hear many shopkeepers exclaiming. "Would you have us turn half our premises into a lumber-house for the thousand and one useless inventions that are patented year in, year out?"

To which I reply that no one with the ghost of an instinct for business expects or wishes the tradesman to be a philanthropist. Business is business, and admitted without reserve that it must be pursued in the purely commercial spirit, nevertheless there is no denying that there are good, bad and indifferent commercial policies under which it is carried on. The question which vitally concerns us at the moment is whether those up-to-date business houses known as "stores" are governed by a progressive policy with regard to new lines of goods, particularly those in which rubber plays a constructive part.

Every inventor naturally looks upon his latest achievement as

the one thing wanted to revolutionize the world. That is precisely how he ought to feel about his work. Who is likely to believe in his invention if he himself has only a half-hearted faith in it? How can he ever hope to succeed in the always difficult task of making converts unless his enthusiasm is so keen that it tends to become infectious? Every shopkeeper is inclined to think that there are rather too many new things under the sun nowadays, to look upon the inventor as a crank, and to regard his latest patent with suspicion. This conservative attitude of traders is all the more to be regretted seeing that manufacturers as a body are very progressive. The manufacturer, as a rule, encourages the man with ideas; time after time he takes the risk of materializing such ideas on a wholesale scale; time after time he has to face the difficulties of getting the new goods on the market. If the trader had to deal directly with the inventor, there would be sound reason for his extreme wariness—it behoves the business man to be wary of all forms of genius, from madness upwards. But it is the manufacturer who has the responsibility of dealing with the inventor; the trader is only called upon to decide whether he will stock the goods made by men who are certainly his peers in matters of business. Little shopkeepers can hardly be blamed if they do not take the risk of buying new lines of goods with the enterprising idea of introducing them to the public; nor even if, considering the limited accommodation of their premises, they will not consent to take a stock of such goods on consignment. But let a shop call itself a "Stores," and unless it be a village depot where lollipops, candles and sundry articles of clothing hobnob on the same shelf, people expect it to be quite up-to-date as regards its stock. Personally, I think that not only the manufacturers, but the public might reasonably expect even more of the really first-class stores in a big city; their stock should be ahead of the times, in that it includes a good show of latest inventions, and their assistants should be well informed in the current history of industrial development in so far as it affects their particular department. In a word, "Stores" should be run on exhibition lines to a great extent.

I am at present engaged in the interesting and illuminating business of going the round of the big London stores, trying to discover by a method of my own the policy under which their rubber department is carried on. My role is that of a quite ordinary member of the intelligent public. Being interested in rubber goods, I read all the advertisements in the leading British, American and foreign periodicals that are wholly or partly devoted to the interests of the rubber industry. In imagination I put myself in the place of all manner of people: I am worked up to a fever pitch of anxiety to try this and that new tire for my motor; various new kinds of waterproof garments appeal to me as just the thing to include in my kit when next I go to the tropics, indulge in a round of winter sports, or join in a fishing expedition; as a surgeon, such and such rubber appliances seem to me decided improvements on others I am using; I feel sure I could win any golf tournament if only I used such and such a make of golf balls. Then I go the round of the stores, and ask to look at the various goods to which I have been attracted by advertisements. Can they or can they not show them to me? That is one great question, in the nature of a searching test of their efficiency and general usefulness. Again, if they have any of these goods in stock, can the assistant who is attending to me point out to me the special advantages of the new lines over their predecessors of the same class? Can he, in the case of a new invention, explain to me its advantages? And yet again, if the goods I want to see are not kept in stock, has the assistant ever heard of them? Moreover, I try to find out whether the assistant can discuss with me various current topics connected with the rubber industry. And sometimes I adopt the bold test-plan of asking to be shown the very latest thing made of rubber that has been taken into stock.

In relating my experiences gained during such expeditions, I

shall avoid, as far as possible, personal comments and criticisms. For to all whom they may concern, such experiences will, I feel sure, be of more service if they are told in such a way as to allow every one to say spontaneously when and where he will. "How agreeably surprising," or "How utterly horrifying." But in justice to the trader, I must ask my readers always to bear in mind that manufacturers must not grumble about the difficulty of getting new goods on the market unless they are indefatigable in their efforts to bring their goods under the notice of the retailers, and unless they do their share of drawing public attention to the same by advertising. And in justice to the public, who are so frequently blamed for lack of enterprise in trying new inventions, I would remark once and for all that no one can try a thing of whose existence he knows not. Most people in this world are too busy to hunt for what they want, so the things they want must hunt for them.

A few days ago, bent on the quest I have already explained, I visited the Army and Navy Stores, one of London's old-established and popular shopping centers. I went first to the rubber clothing department. Here I was told that the latest novelties were silk oilskins of a very light weight. I was shown them in all colors, and one chosen at random was weighed for me; it just turned the scales at 1¼ lbs. This was a lady's garment, but the silk oilskins for men were of about the same weight. My special attention was also drawn to waterproof hoods in the same material; these, I was assured, were highly popular with ladies for motoring, yachting, driving, etc. A feature of this waterproof material in question was that it was made *entirely without rubber*. (It is very difficult for me to refrain from making any remarks here anent the importance of rubber maintaining its hold on the waterproof market.) These stores make a specialty of ladies' wading trousers for fishing; also of waterproof boots and shoes with canvas and leather brogues. The only other novelty I was shown for ladies was an attractive line in showerproof theater-wraps, which, I was told, were equally popular for smart automobile wear. In the men's part of the department, I was shown a waterproof coat made of material put together on the "sandwich" principle. This material consisted of two layers of canvas, with rubber in between. The coat was put on the scales for me; it weighed just under 2 lbs. In this same department of the stores are kept various traveling requisites. A specialty is made of "Hold-Alls," in the "sandwich" material already referred to; these articles are provided with locks, thereby complying with one of the regulations respecting baggage that may be put into the luggage vans of Continental trains. In reply to my question as to what was the nationality of the various articles I saw around me, I was informed that most of the goods were of British manufacture. The Stores do a good deal of their own manufacturing, but they buy the various rubber fabrics from which they make their goods. The only foreign made article in the department was a Belgian novelty, a self-inflating cushion. America was represented by Boston overshoes. The assistant waxed enthusiastic over their superiority, telling me how very light they were, and remarking that English manufacturers still continue to turn out only the heavy makes, in spite of the demand for the lighter kinds. By the way, the Army and Navy Stores are virtually a private trading concern, and, as a general rule, only members are allowed to deal here. But special purchasing privileges are extended to Americans staying at the big London hotels.

Upon inquiring for the very latest novelty in the way of rubber goods, the same assistant produced a "Foot-Cosy" hot water bottle, made in the form of a tea cosy.

Next I went among the Luncheon and Tea Baskets, where I found that these widely used articles are still being made with rubber foot-rests. There were various patterns, with corrugated rubber on the top of the lid, inside the lid a groove, and on the edges of the body a round band of rubber to fit into the groove and keep the basket dustproof and airtight.

In the sports department I was shown some new rubber-cored golf balls, which can only be obtained at these stores. These balls have a wide marking, quite different from anything now on the market, and on the authority of many players, this new plan of marking gives remarkably fine results both as regards flight and putting. Other avowed novelties here were roller skates with exposed rubber cushions, and rubber coverings for tennis racquets. The assistant did not seem to think that rubber was being put to any new uses in the way of sporting requisites. He pointed out that the material was not being used so much now as in the past for cricketing gloves.

The automobile department could show me no improvements in which rubber played a part. On the contrary, here my attention was drawn to a fine new car in which steps and footboard were covered with aluminum instead of rubber, which we are accustomed to find there.

ESTIMATED DIVIDENDS OF ENGLISH RUBBER COMPANIES.

BUSINESS in rubber shares has been of late restricted on the London exchange through the prevailing uncertainty as to the prospects of the rubber market. While the dividends of most companies have, it is true, fully corresponded with expectations, the opinion has been expressed that the high profits of the plantation industry during the last few years are due to causes which today no longer exist. In consequence, many companies have, it is understood, proceeded to establish reserve funds, by which the shareholders, who anticipated high dividends, are at the moment little benefited. While it is considered improbable that the high prices of recent years will be again reached, a further reduction is regarded as hardly likely.

In view of these facts, an interesting estimate has been compiled by the London "Financial Times" of the dividends to be anticipated for 1911-12, by 24 of the leading companies, which are quoted below, as well as the dividends paid for 1910-11:

	Dividends, 1910-11.	Estimates, 1911-12.
Allagar	10	12
Anglo-Malay	100	40
Batu Caves	150	100
Batu Tiga	20	20
Bikam	8	25
Bukit Rajah	150	90
Cicely	200	125
Consolidated Malay	100	60
Damansara (Selangor)	75	42
Federated (Selangor)	140	90
Golconda Malay	55	44
Golden Hope	40	20
Highlands and Lowlands	50	22
Inch Kenneth	55	65
Kamuning (Perak)	20	27
Kepong (Malay)	40	100
Klanang Produce	87½	90
Linggi Plantations	237½	100
London Asiatic	25	30
Selangor	375	178
Straits Settlements (Bertram)....	35	13
Tremelbye (Selangor)	25	36
United Serdang (Sumatra).....	10	14
Vallambrosa	175	75
	2,183	1,418

The above estimates are based upon the monthly returns of production as far as published and upon a cost equalling about 36½ cents per pound, in conjunction with a selling price of about \$1.09½. It will be noticed that the average dividend is estimated as showing a reduction of about one-third, as compared with the rates paid for 1910-11.

The United States imported from Russia in the year 1911, scrap rubber to the value of \$638,367.

THE NORTH BRITISH RUBBER CO., LIMITED.

TO stand foremost in a great industry in a great empire is no small achievement, but that is what the North British Rubber Co., Limited, has accomplished. It is the largest rubber manufacturing concern in the British Empire. An illustration of how this great result has been accomplished may be found in the new laboratory, recently established by that company—which, by the way, is the third complete laboratory the company has built and equipped inside the last ten years.

This new laboratory, which occupies an entire building, and is

system. Before any goods leave its factory, in fact before any goods whatever are made for shipment, they are subjected to every possible test, so that when they leave the factory they leave

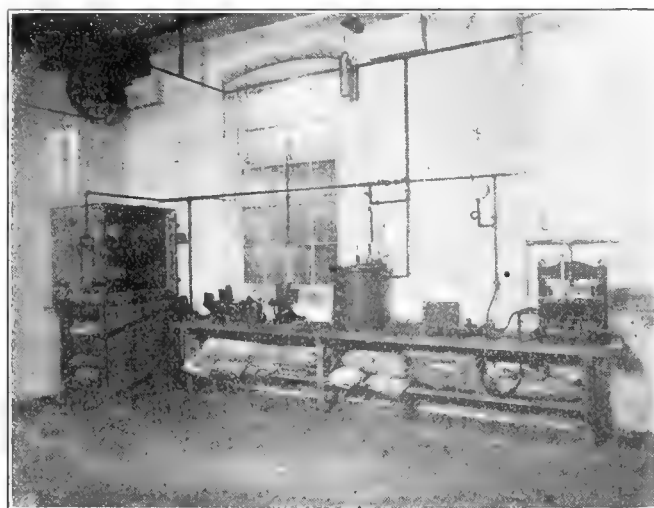


PHYSICAL LABORATORY.

with confidence. Every article will do the work for which they are intended.

In addition to the Research Laboratory, where new products are being constantly tried, there is the Routine Laboratory, where all the factory supplies, crude rubber, chemicals, etc., are subjected to a thorough examination before put into factory use.

In the Physical Laboratory the specific gravity of finished goods is tested. This laboratory has become exceedingly important since the demand for rubber balloon and aeroplane fabrics. Every piece of this fabric is tested for hydrogen leakage. To weigh hydrogen requires very delicate scales. The balances which the two young men in the accompanying picture are watching will weigh to 1/10,000 part of a gramme.



MECHANICAL LABORATORY.

In the Electrical Laboratory, an illustration of which is also shown, the dielectric strength of the company's various products, in connection with the electrical industry, is tested. The apparatus used here is capable of a pressure of 20,000 volts. It goes without saying that this has to be used with extreme care. You can judge of the power of this apparatus when you reflect that the average electric pressure in house lighting is only about 200 volts.

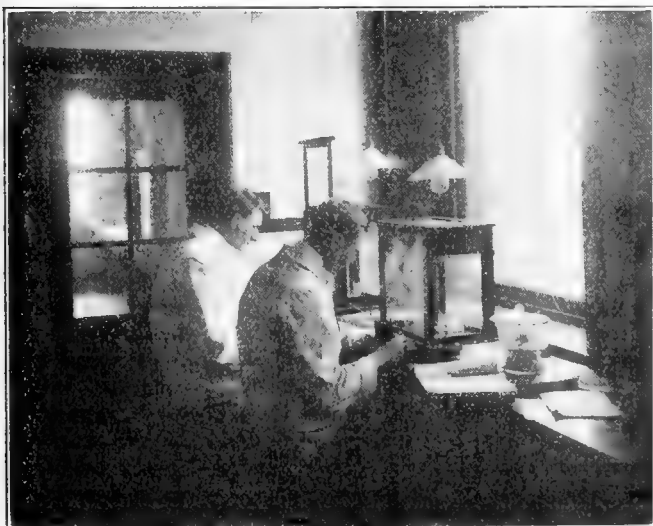
The Experimental Department is in reality a small model factory, complete in every particular. Here new compounds are tried, and finished samples turned out before being taken up on



RESEARCH CHEMICAL LABORATORY.

supplied with its own power and lighting plant, includes six different departments, namely: Research Chemical Laboratory, Routine Chemical Laboratory, Physical Laboratory, Electrical Laboratory, Experimental Department, and Mechanical Laboratory.

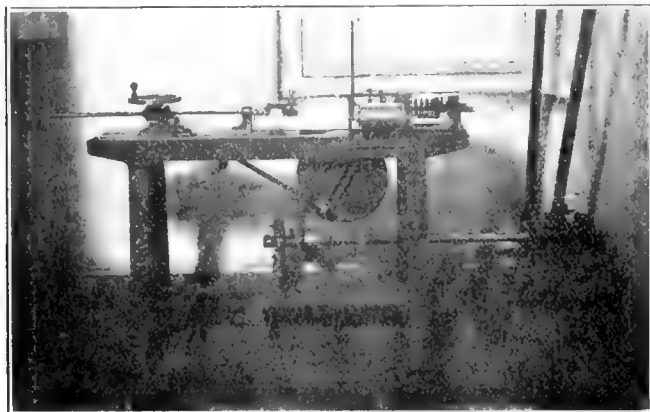
In the Research Chemical Laboratory, a view of which is given in the accompanying cut, there is the most elaborate apparatus enabling the company to carry on a vast variety of investigations of value to the factory. Where goods are to enter into chemical uses, their utility is here thoroughly tested. Some manufacturers are content to make their goods as well as they conveniently can,



BALANCE ROOM.

send them to market and trust to luck. If no fault is found, well and good; if there are complaints the goods are taken back and new ones sent in their place. But this is not the North British

a large scale in the factory proper. In the Mechanical Laboratory, the tensile strength of all fabrics used in the factory is tested, from the lightest sheetings to the heaviest duck for belting.



A TESTING MACHINE IN MECHANICAL LABORATORY.

This elaborate apparatus for testing every step of manufacture and insuring the perfect accuracy with which every step is taken tells the whole story of this company's great success. There is nothing mysterious about it—it is the logical result of the exceptionally scientific methods which the company employs.

SOME RUBBER INTERESTS IN EUROPE.

AUSTRALIAN IMPORTS OF RUBBER GOODS.

OFFICIAL returns show that for the nine months ended September, 1911, the imports of rubber goods into the Commonwealth of Australia represented \$3,517,135, as compared with \$2,392,405 in the corresponding period of 1910. That this country has only to a limited extent participated in the movement, is indicated by a comparison of the figures published December, 1910, and December, 1911, by the INDIA RUBBER WORLD:

UNITED STATES EXPORTS TO AUSTRALIA (fiscal years.)

	1910.	1911.
Belting, packing and hose.....	\$127,446	\$112,890
Boots and shoes.....	177,924	161,882
Other goods	101,039	143,432
	<hr/> \$406,409	<hr/> \$418,204

Including:

Tires for automobiles, not separately shown.....	\$3,292
All other tires, not separately shown.....	4,108

(Previous to 1911 tires were returned with other goods.)

It is therefore evident that the purchasing capacity of Australia is largely extending, although the increase in the export of American rubber goods to that market has only been about 3 per cent. in 1911 as compared with 1910.

The 24 Australian rubber factories produced in 1909 goods valued at \$1,822,073, while the imports for the entire fiscal year 1910 represented about \$3,000,000.

CALENDARS RECEIVED.

Meyer Cohn, Hanover, Germany, has issued an useful calendar, with a cardboard mount, which shows twelve months of the year, and with a large central pad which devotes one page to each day. This is intended for wall use in the office or factory.

The wall calendar distributed by the North British Rubber Co., Limited, Castle Mills, Edinburgh, is a very substantial affair. It

is printed in three colors on heavy cardboard, 12 x 18 inches in size, and has a pad with a page for each day showing the numbers in large-sized type.

The "West India Committee Circular," a London publication devoted to the interest of the West Indies, has distributed a small calendar, printed in one color, showing a tropical scene.

SUGGESTED CHANGES IN GOVERNMENT RUBBER SPECIFICATIONS.

AS reported in the last issue of the INDIA RUBBER WORLD, a conference took place on December 15 between the Washington authorities and a committee representing the rubber manufacturers, concerned in the removal of the present restriction of government specifications, to the use of Fine Upriver Pará.

The joint committee appointed on that occasion was composed as follows:

REPRESENTATIVES OF THE GOVERNMENT.

- Bureau of Standards (Physicist and Chemist)
- Bureau of Chemistry (Dr. P. H. Walker).
- Bureau of Steam Engineering (Commander L. A. Kaiser, U. S. N.).
- Bureau of Yards and Docks (Civil Engineer Chambers, U. S. N.).
- Bureau of Supplies and Accounts (New York Chemist, J. P. Millwood).
- Bureau of Construction and Repair (Naval Constructor, E. S. Land, U. S. N.).
- Isthmian Canal Commission (W. A. E. Doying).

REPRESENTATIVES OF MANUFACTURERS' INTERESTS.

- Boston Woven Hose & Rubber Co. (J. W. Fellows).
 - B. F. Goodrich Co. (Dr. W. C. Geer).
 - Revere Rubber Co. (W. F. Jones).
 - Diamond Rubber Co. (D. C. Noble).
 - Manhattan Rubber Mfg. Co. (H. S. Doty).
 - Rubber Goods Mfg. Co. (D. A. Cutler)
 - Gutta Percha & Rubber Mfg. Co. (W. W. Spadone).
- Mr. Fellows is Chairman of the Manufacturers' Sub-Committee and Dr. W. C. Geer, Secretary; the Chairman of the joint committee being Naval Constructor E. S. Land.

The Manufacturers' Sub-Committee held an initial meeting at Washington on the occasion of the conference of December 15, when it was stated to be the intention of the committee of the whole to take steps towards the revision of the navy specifications, submitting the results in the course of one or two months. The Joint Committee held a meeting on December 16, in which methods of procedure were outlined.

In a circular letter addressed to rubber manufacturers on December 19, the Manufacturers' Sub-Committee asked their opinion upon the elimination from Navy Department specifications of references to chemical composition (Pará, sulphur, or mineral matter) and the substitution of sufficiently severe physical tests, so that the Department might be assured that any article passing these specifications would be at least of as high grade as that which they now receive, and of equal or better durability.

A second meeting of the Manufacturers' Sub-Committee was held in New York on January 16, where very satisfactory progress was made; the many tests which each of the committee had made during the previous month being of great assistance in reaching conclusions. The methods of test and testing apparatus were put into shape for further consideration. Another meeting is to be held in February, and the committee is understood to be desirous of receiving suggestions from anyone interested in this matter of specifications.

The Rubber Industry of Japan.

(By a Special Correspondent.)

THE YOKOHAMA ELECTRIC WIRE WORKS.

NOW ranking among the largest of the Japanese insulated wire and cable manufacturing companies, this factory was established in 1895 with a capital of \$25,000 by Messrs. Hiranuma, Watanabe, Wakao, Kimura and Onishi, prominent

The main works of the company are situated at Ura-Takashimacho, Yokohama; the Osaka branch factory being at Kyomachitori, Nishiku, Osaka; covering in all five acres, of which the buildings occupy three acres. A separate building will be devoted to the manufacture of paper cable. The motive power is furnished by three boilers, one engine and one dynamo, while the hands (exclusive of those in the paper cable branch) at present number 850.

In the electric testing room, there are English high insulating and high-pressure testing apparatus for break-down test of 60,000 volts. The machinery for manufacturing lead-covered rubber wires $\frac{1}{8}$ inch to 4 inches is of German construction.

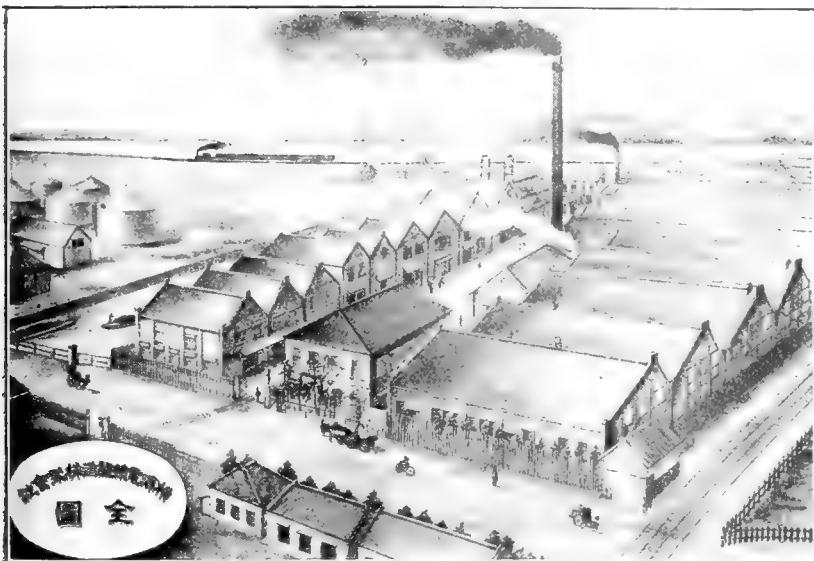
The principal branches of production are:—

1. Electric insulated wires and cables; cotton-covered weatherproof wires; lead-covered insulated wires; armored and military service wires and cables; silk or cotton lamp cords, etc.
2. Joint boxes, junction boxes, etc.
3. Lead, gas and water pipes.

Among the principal divisions of the works are: Stranding shop, rubber shop, rubber drying room, braiding shop, lead covered shop, compounding shop, finishing shop, tinning shop, etc. The annexed illustrations show a complete view of the works; the washing roll, mixing roll and calender room; and the braiding shop, with large productive capacity.

AMERICAN TRADE WITH JAPAN UNDER NEW TARIFF.

Statistics of American shipments to Japan during August last are of special interest as indicating which articles can stand the duties of the new Japanese tariff. By the report of the Consul for Japan at New York for the month of August, shipments of



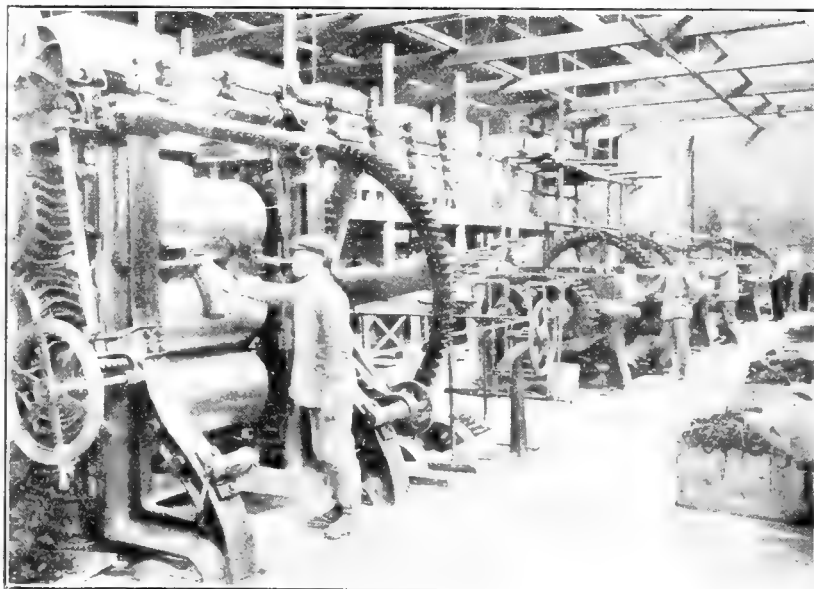
COMPLETE VIEW OF YOKOHAMA ELECTRIC WIRE WORKS.

Yokohama business men. The growth of the plant was in proportion to the additions made to its capital, which became successively, \$50,000; \$100,000; \$150,000 and \$600,000; these increases extending over a period of 14 years.

With the object of studying the manufacture of rubber-covered insulated wires, Mr. Y. Hashimoto was sent to Europe; Mr. M. Wachter, a German expert being engaged to improve the operations of manufacture, and Mr. S. Tanakai, chemist and Bachelor of Engineering, becoming chief engineer. The latter, upon leaving the works, was succeeded by Mr. E. Hata, assisted by Mr. M. Yokoyama, likewise a Bachelor of Engineering. Under the expert direction of these engineers the works made remarkable progress, not only in rubber-covered wires but also in many other descriptions.

In connection with a reorganization taking place July, 1908, capital to the extent of \$325,000 was invested in the stock of the Yokohama company by the Furukawa Copper Company, from which the first-named concern had long been purchasing copper wire. The Furukawa Company thereupon gave up the intention of establishing its own electric wire and cable manufacturing company.

About a year before this fusion, the Yokohama premises were burnt; being replaced in August, 1908, by a new and extensive plant. In 1910, after the departure of Mr. E. Hata, the post of chief expert was filled by Mr. D. Coyle, who came out from England for that purpose. New machinery and buildings are now under construction, for the manufacture of paper-insulated cable, which will be completed by April next, and have involved the investment of further capital to the extent of \$250,000.



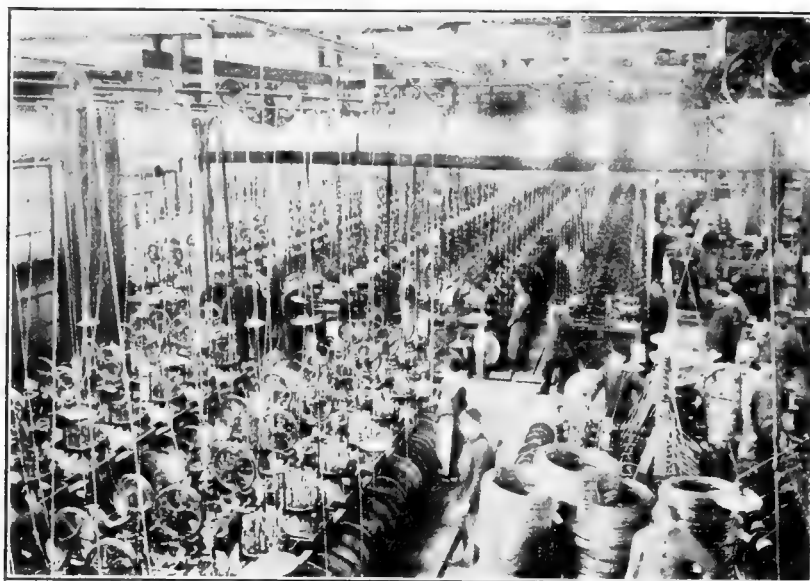
WASHING ROLL, MIXING ROLL AND CALENDER ROOM.

rubber boots and shoes, which had been temporarily interrupted (as shown in the INDIA RUBBER WORLD, December, 1911, p. 132), had been resumed, though on a smaller scale. The new Japanese tariff went into effect July 17, 1911. The figures show:

RUBBER BOOTS AND SHOES.

Japanese imports, June, 1911.....	5,814 pairs	\$2,720
Japanese imports, August, 1911.....	none.	none
New York shipments, August, 1911.....	2,632 pairs	\$1,669

Shipments from New York in the above line for the eight months ending August 31 had been 47,100 pairs, value \$35,252. Owing probably to the effects of the new Japanese tariff, it will be noticed that August shipments were only about half the monthly average for eight months of 1911.



BRAIDING SHOP.

MEIJI RUBBER WORKS, TOKYO.

Since its establishment in 1900, this company has accumulated a reserve of \$50,000 beyond its capital of \$25,000. Owing to the technical director, Mr. A. T. Ferguson, being an Englishman, the machinery and business policy of the company is English in character, while its relations with the Japanese government and other large consumers ensure it a steady and remunerative business. Its motive installation represents 250 h. p. and it has a staff of 220 male and female hands; the annual production being from \$450,000 to \$500,000, including mechanical goods, medical appliances, mats, tires, balls, and a large variety of articles. The average annual consumption of crude rubber is about 22,000 pounds, of which one half comes from South America, one fourth from Africa and one fourth from Ceylon, Singapore and Oceania.

MITATSUCHI RUBBER MANUFACTURING CO., TOKYO.

Originally started on a small scale in December, 1884, this concern is now perhaps the largest Japanese rubber company; occupying a space of 3.31 acres, of which the buildings cover 1.22 acres. The original capital of \$40,000 has been supplemented by the establishment of a reserve fund amounting to \$222,230. The motive installation represents 715 h. p.; the boiler and engines being of the Lanarkshire type, and the electric motors having an aggregate of 18 h. p.

The working staff includes about 180 male and 196 female hands, while the manufactures are very diverse in character, comprising mechanical goods, tires (for bicycles, not for jinrikishas), overshoes, rubber belts, mats, ebonite, etc. In overshoes this is said to be the only factory in Japan, and it has successfully met foreign competition in various other lines. Its consumption of crude rubber in 1910 represented 196,800 pounds; (about one-eighth of the total Japanese import), of which 192,000 came from Borneo, and the balance in equal quantities from South America and Africa.

YOKOHAMA IMPORTS SEPTEMBER AND OCTOBER, 1911.

The Yokohama imports of crude rubber were in September, 1911, 125,828 pounds, value \$99,791, and in October 57,539 pounds, value \$42,877.

As to manufactures of rubber, the comparative imports of the two months in question showed an increase in hard plate rubber of United States manufacture from \$165 to \$4,363, while under the head of rubber manufactures not otherwise specified, the share of the United States rose from \$972 to \$1,410.

In the quantities of insulated electric wire, there seem to have been various changes in the sources of supply, as follows:

	September, 1911, pounds.	October, 1911, pounds.
Great Britain.....	188,575	19,488
Germany	1,604	221,288
Italy	3,475	.....
United States	11,959	535
Total pounds	205,613	241,311

Germany would thus seem to be gaining a footing in Japan in the branch named.

Bicycle tires from Great Britain showed for September a value of \$16,375, and for October, \$26,799; while there were in the later month no receipts from the United States, as compared with \$1,308 in September.

Rubber overshoes from the United States show a decrease from \$6,429 to \$550, between September and October.

While these figures only refer to the port of Yokohama, they are fairly representative of Japanese imports generally.

JAPANESE-MALAYAN PLANTATION COMPANY.

The Kyushu Rubber Co., Limited, is being established at Midzuga-Machi, Saga City, Sagaken, Japan, under the direction of Mr. H. Nakamizo. Its object is to acquire the lease of 1,000 acres in Johore, for the cultivation of rubber, planting 300 acres a year. The capital amounts to \$60,000, one-fourth of which is to be called up at first. It is estimated that about \$49,000 will be devoted to the expenses of plantation and cultivation during the first five years.

A GERMAN CRUDE RUBBER RETROSPECT OF 1911.

DEALING with the prominent features which marked the German rubber industry during 1911, the *Gummi-Zeitung* remarks as to crude rubber, that manufacturers commenced the year 1911 with stocks of dear raw material on which substantial losses had to be written off. These losses in the German rubber industry are estimated to have represented a total equalling about \$1,250,000.

The reduced quotations for rubber goods, permitted by the fall in rubber, led to increased business and to the establishment of new factories, competition being thus rendered keener. It was regarded as a fortunate circumstance that the downward tendency of crude rubber prices was interrupted by periods of recovery, the loss to manufacturers on their older stocks of rubber being thus diminished. This feature of the market was accentuated by the relatively higher prices of medium grades.

An idea of the relative positions of crude rubber and manufactured rubber goods is afforded by the fact that while in 1910 the former advanced 70 to 80 per cent., the prices of the latter in Germany went up only 30 per cent.

NOTES FROM BRITISH GUIANA.

(By Our Special Correspondent.)

THE CHANCES FOR CAPITALISTS.

THE elections to the local legislature are now at an end and they have resulted in considerable changes. The claim that was made from several plantations that capital and population are needed for the development of this colony, and that capital is not likely to be attracted here by a legislature composed of the people's representatives, who are chiefly lawyers, seems to have had due effect upon the electors, for they have returned members representing capitalists operating in the colony, chiefly those concerned in the sugar industry, but among those returned are some members who have an intimate knowledge of the rubber and balata industries and their problems. The legislature, as at present constituted, promises to look after the interests of capital, and it is probable that a mistake such as that which led to an export duty being imposed on balata will not be repeated.

CAPITALISTS AND RAILWAY CONSTRUCTION.

Colonel J. W. Link, who was instrumental in floating the Consolidated Rubber & Balata Estates, Limited, and the Amsterdam Balata Co., and who endeavored to secure a concession for the building of a frontier railway four years ago, has returned to the colony. He reports his intention of proceeding with his railway project and contemplates a through line from Georgetown to Manáos, thus tapping not only the balata districts in this colony, but the rich rubber areas of the upper Amazon also. His last advice was turned down because the government of the day considered the demands made were excessive. That administration has now closed and the colony is awaiting the arrival of a governor, who will come here at a larger salary and who, it is anticipated, will be an officer experienced in the difficult task of developing backward colonies which are rich in resources.

THE GOVERNMENT AND THE BALATA INDUSTRY.

At a recent meeting of the Balata Association an interesting suggestion was made by Mr. Edward Edwards (representing Ed Maurer) to the effect that the present export tax on balata should be abolished and a royalty of six cents charged, the money collected from this source being allotted to the work of establishing wireless communication and constructing roads for the benefit of the balata industry. It was urged that six cents would be a heavy royalty, but it was decided to communicate the proposal to the government, suggesting that a royalty of five cents should be imposed. The request is not an unreasonable one, because in spite of the considerable sum realized by the government from the balata industry in royalty, export duty and license fees, it does practically nothing for it in return.

In this connection an interesting letter has appeared in the local press, stating that no company or individual would object to pay a royalty of five cents (no export duty) provided that two-thirds of the royalty should be spent in opening up the country by means of communication (either by telephone, telegraph or wireless) and by roads.

"Let the Government borrow £100,000 for this purpose; there would be no difficulty in finding the money. Taking the production of balata at one million pounds per annum, the royalty would, at five cents, be approximately £10,500; two-thirds of which, viz., £7,000, would pay 4 per cent. interest on the loan, £2,000 per annum to be set aside for repayment of the capital, leaving £1,000 per annum plus the charges for messages (wireless or other), for upkeep of stations and roads. Such a scheme will not benefit the balata industry alone, but the whole colony."

RUBBER PLANTERS TO COMBINE.

The same writer urges rubber planters to join the Balata Association, asking what guarantee they have that when their

plantations come into bearing an export tax will not be put upon rubber. It is understood that steps are to be taken to include the representatives of all forestal industries in the association. Whether this will too greatly broaden the scope of the association's activities is a matter that must be left to its executive officers to decide.

STATISTICS OF THE BALATA INDUSTRY.

Some interesting statistics are given in the administration report of the Commissioner of Lands and Mines, which has just been published. The value of the balata industry to the colony's revenue is demonstrated by the fact that the amount paid in royalty increased from \$5,853.16 to \$26,818.48, while receipts will reach an even larger total in this financial year, since all balata now pays an export duty of two cents on every pound. The commissioner points out that the balata industry now pays a rent of \$20 per annum on each collecting license of approximately 50 square miles; 2 cents per pound in royalty on all balata collected; and an export tax of 2 cents per pound on all balata exported.



COOLIE HUT ON SUGAR ESTATE, B. G.

Rubber, of course, has not yet begun to return considerable sums to the revenue. Indeed, only 1,156 pounds were exported in 1910-11 against 6,369 pounds in 1909-10, and yielded a return of only \$23.12 to the revenue.

EXPORTS OF RUBBER AND BALATA.

Balata exports to November 23 totaled 921,752 pounds, against 1,105,833 pounds to the same date last year. Rubber exports have totaled 3,580 pounds against 1,534 pounds.

MR. E. EDWARDS AND THE LABOR PROBLEM.

Mr. E. Edwards, when acting secretary to the British Guiana Balata Association, sent a letter to the government concerning the labor problem, which the government has just answered, and which has now been published. A government commissioner has been appointed to deal with the issues raised by Mr. Edwards, who sets forth the problem in a concise and interesting fashion. He points out that at the present time laborers for the balata industry require under the regulations to be registered not more than six months for particular grants, and under particular foremen, whereas the contracts entered into are for terms of nine and twelve months. The registration period, therefore, is inconvenient and troublesome because bleeders often think they are not bound to be re-registered for the unexpired term of their contract. The system of registering for specific grants has also been found inconvenient, "as through accident or other misfortune, such as false reports by prospecting parties, which unfortunately, do not render the guilty person liable to prosecution, it is often impossible to put the men on the grants mentioned in the contract. Other grants may be open for work and the men often refuse to go there."

Dealing with the punishment of men who break their contracts Mr. Edwards says: "It has been proved that bleeders once they

have become indebted become callous and openly state that they prefer to go to jail than to complete their contracts." He suggests that contracts should be completed after a sentence of imprisonment has been served for breach, and that others engaged in the same industry should be debarred from employing such men until they have done so, pointing out that such a remedy is recognized in the existing Immigration Law of the colony and that some such provision exists in Surinam. He suggests that bleeders should be registered by a government department.

THE BLEEDING REGULATIONS.

Mr. Edwards referred in his letter to the bleeding of trees: The restriction in the regulations as to bleeding is positive, but from the information received it is clear that any bleeding, often repeated, kills the trees eventually, he says. The primitive method of bleeding with a cutlass, done under any restrictions, is likely to wound the tree to such an extent that rot and decay set in. On the other hand statements have been made by old bleeders that they have seen trees that have been bled right round still in good health and yielding latex freely. This question is of great importance and all the available information on the matter should be gathered.

The government has replied that with the assistance of Professor Harrison, director of Science & Agriculture, the acting governor is causing inquiries to be made of all persons or scientific institutions from whom it is thought reliable information as to the life history of the balata tree may be obtained.

THE AMERICAN EXHIBITION. THE COLONY TO BE REPRESENTED.

At a meeting of the Permanent Exhibition Committee, held on December 6, it was resolved that the colony should be represented at the Rubber Exhibition, to be held in New York in 1912; but, in order to effect economy, if possible, it was resolved to communicate with the secretary of the Permanent Exhibition Committee of Trinidad, to ascertain whether that committee was prepared to consider a joint exhibit. The proposal that the colony should be represented at all events provoked very little discussion; the desirability of the suggestion being manifest to all. Indeed, it was pointed out that the development of the industry is likely to spring to a much greater extent from the United States, both from the point of view of supplying capital and of providing a market. The fear is entertained here that the superior attractions of the Eastern plantation rubber industry are likely to withdraw the attention of British capitalists from the possibilities of this colony as a profitable field for the investment of capital in rubber. At all events, the colony is going to see what it can do by bringing its attractions before the American rubber interests. It was pointed out at the meeting to which I have referred that the colony's expenses at the British exhibition amounted to £101 3s. 11d.

RUBBER TAPPING. INTERESTING EXPERIMENTS.

A report has been published by the Department of Agriculture, of the results of a long series of experiments, carried out on wild *Sapium Jenmani* trees. The tappings have proceeded over a period of two years. The results are said to be valuable from a scientific point of view. "It must be pointed out and emphasized that the results apply only to old *Sapium Jenmani*, growing in conditions such as obtain on river banks"; says the report, "they do not justify any conclusion being drawn as to the behavior of young trees on plantations on higher and drained lands."

The following are the results of the experiments: "The trees yielded latex very freely when first tapped, and produced rubber of very high quality, not subject to 'tackiness.' The yields of latex and consequently of rubber rapidly fell off during successive tappings and the rubber obtained from the tappings was subject to 'tackiness.' This tendency increased during subsequent tappings; until some, if not all, of the trees, when exhausted by

frequent tappings, yielded latex from which coagulated rubber was not obtainable. It was noted that the tapped part of the trees ran practically dry of latex after three to six successive parings. There were no signs of wound response. When the lower part of the trunk of a repeatedly tapped tree was practically exhausted of rubber-yielding latex, the higher parts of the trunk yielded latex in relatively large quantity, and while the rubber from the latex of the lower part of the tree might be very 'tacky,' or more or less resinous and coagulable with difficulty, that yielded by the upper part, was of very good quality. The wounds made on the bark of the tree during tapping, were found to heal very slowly and unsatisfactorily. The tendency to 'tackiness' was much more noticeable in biscuits prepared from the latex, than in carefully prepared self-coagulated 'scrap.'"

The report concludes with some interesting figures: "During a period of two years the yield of dry rubber from mature *Sapium Jenmani* trees of various sizes from 30 to 92 inches in girth, at three feet from the ground—the great majority of them, however, measuring between 40 and 90 inches in circumference—was 15.33 ounces per tree. The trees were tapped up to a height of six feet or seven feet from the ground, and were bled to practical dryness. The proportion of rubber appeared to vary considerably. The latex obtained in 1905 yielded about 18 per cent. of dry rubber, that of two trees tapped for the first time in 1910 contained 15 per cent; while that yielded by trees which had been subjected to tappings during several periods contained about 11 per cent."

The percentages of "rubber" in the dry rubber of the biscuits of the various qualities, was found by analysis to be:

	"Rubber" in dry rubber.
Excellent rubber from first period.....	94.5%
Weak, inclined to be tacky, from 2nd to 3rd periods.....	93.6%
Quite soft, and very tacky, from 3rd period.....	92.4%
Soft, tacky, resinous, coagulated mass from 4th period....	51.3%

(The proportion of "chemically pure" rubber extracted on analysis varied in similar fashion.)

The Government Economic Biologist, lately appointed, has been turning his attention to the insects and pests attacking rubber in the colony, and planters have the consoling assurance that his researches have not, up to the present, been productive of very alarming results. He reports that a species of scale insects seems to be the most prevalent, which attacks the younger shoots, giving them a characteristically "warty" appearance, and often causing their death. Careful investigation is advised, and the appearance of these indications is to be resisted by the timely application of a good rosin compound wash, which is guaranteed to prove effective. Another scale is said to be fairly prevalent, but does not do much mischief, and can also be dealt with by means of the rosin wash. Ants occasionally do considerable damage to young trees, sometimes, completely defoliating them. The method of prevention advised in this case is to trace the offenders to their lair. Having found their nest, all holes leading to it are to be closed with earth or clay; several holes are then to be bored to a depth of about half a foot, in the centre of the nest, and about two ounces of carbon bisulphide should be poured into each hole, the hole being plugged with earth. Such methods are warranted to consign these troublesome pests to a place where insects cease from troubling.

The larvae of two varieties of hawk moth commit depredations on the leaves of young trees, but they may be kept in check by hand picking, being easily discernible and not numerous. A species of locust has done some damage, but these also may be caught by hand, and are not sufficiently numerous at present to create any anxiety. The rubber planter here at present has little cause for uneasiness in this respect, and a little vigilance will secure him immunity from such troubles.

Some Notes on Rubber Planting.

FIVE TONS OF RUBBER STOLEN.

ACCORDING to details received, the United Temiang Rubber Estates (Limited), State of Negri Sembilan, Federated Malay States, had met with a loss which reduced its shipments for the year ending July 31, 1911, from 35,839 pounds (as they should have been, according to the total of the monthly outputs) to 25,702 pounds. This loss of about five tons was caused by the stealing of the rubber which had accumulated during the erection of the factory, now completed.

POSSIBLE PROHIBITION OF COOLIE LABOR IN MALAY STATES.

It is reported from Singapore that a law has been passed empowering the government to withdraw the present sanction for the employment of coolie laborers, this step being due to a gross case of lack of supervision upon a rubber estate. In view of the actual and prospective further importance of coolie labor in the rubber production of Malaysia, such a change would have far-reaching consequences. The action of the authorities will therefore be observed with interest.

THE RECENT DROUGHT IN THE MALAY STATES.

In the report of the Federated Malay States Rubber Co., of Antwerp, reference is made to the fact that from March to June last, the drought in the Malay Peninsula and the Sunda Islands affected the yield of all plantations in those parts of the Far East. Fortunately, it is added, such a trouble is rare, no similar instance being on record since 1898, at which time rubber cultivation had only assumed very modest proportions.

FIRST TAPPINGS OF KAMERUN COMPANY'S FUNTUMIA TREES.

The Kamerun-Kautschuk-Compagnie A. G., at the recent Berlin meeting, reported that about 4,500 acres were under cultivation; the number of trees including 1,740,000 *Kickxia* (*Funtumia*) and 240,000 *Hevea*. During last summer, the oldest Funtumias (planted in 1906-7) were tapped; the average result being about $\frac{1}{2}$ oz. per tree. Encouragement is expressed at the prospects indicated by the results of these first tappings.

COOLIE CATCHING AND RUBBER PRODUCTION.

The fact that the total number of coolies arriving in Ceylon for the seven months ending July 31 was only 48,653, while Malayan arrivals in the six months ending June 30 numbered 54,602, has been commented upon in the "Malay Mail" as illustrating the progress of the younger country. It is added that the inducements which contributed to this result ought to achieve much more in the future; this being particularly the case as to free passages, as well as the efforts of planters to make the lives of their estate coolies more than merely bearable.

HEXAGONAL PLANTING.

In a statement made at the recent meeting of the Tandjong Rubber Company, whose property is situated on the East Coast of Sumatra, Mr. Victor Ris, the agent who had lately visited the plantation, reported that it is planted 21 feet by 21 feet in hexagons, each tree forming the center of a circle divisible by the radius into six equal parts. In ordinary planting in squares where all the sides of the squares are 21 feet, 99 trees are planted to the acre, while by hexagonal planting the number is increased to 115, each tree being exactly 21 feet from the other. The only difference is that the row is about 18 feet distant from the next one.

SCOTTISH MALAY RUBBER CO., LTD., (FEDERATED MALAY STATES).

Registered February, 1906; planted area, 1,577 acres. Crop to November 30, 1910, 26,580 pounds; 1911, 88,411 pounds.

COMPARATIVE RESULTS OF HEVEA AND FICUS.

Dealing with the above question at the recent meeting of the Langkapoera (Sumatra) Rubber Estate, Limited, Mr. W. O. Burt, chairman of the company, stated that until lately the theory was strongly held in Netherlands India that *Ficus elastica*, being an indigenous tree, would in the end prove more satisfactory than *Hevea*, owing to its hardness and immunity from disease. Results have, however, shown that regular yields cannot be depended upon from *Ficus*, the very best yields of that variety being much poorer than those of *Hevea*. Planting with *Hevea* is now being proceeded with, interplanted with *Robusta* coffee.

TEMPEH (JAVA) RUBBER.

Various facts of interest were reported at the recent meeting of the above company. Mr. Brugmann, the Amsterdam expert, had pointed out that while some of the ground is undoubtedly high, judged by the F. M. S. standard, it is sheltered from strong winds by high mountains. Mr. Turner, an English authority, had stated that some of the best-grown trees are on the highest land and that from the free flux of latex he had noticed in experimental tappings, the yield would, in his opinion, not be appreciably affected by the altitude. The planting has chiefly been of *Hevea*, which policy will be pursued, as indicated by the contemplated addition of 300 acres in that variety.

DUTCH GOVERNMENT ENCOURAGEMENT OF RUBBER PLANTING IN JAVA.

At the annual meeting of the United Serdang (Sumatra) Rubber Plantations, the chairman (Mr. Arthur Lampard) referred with appreciation to the fact that the Dutch government, with the desire of developing the wonderful territory of Sumatra, had adopted the English method and had extended a cordial welcome to all capital from whatever source it came. With the object of encouraging the rubber plantation industry in the Dutch Indies, the government had abolished all export duty on cultivated rubber.

TAXATION IN THE FEDERATED MALAY STATES.

Dissatisfaction has been expressed at the fact that the Federated Malay States, with a surplus exceeding \$40,000,000, is needlessly penalizing the rubber industry, by the imposition of an export tax of $2\frac{1}{2}$ per cent., although such a duty exists neither in South India nor in Ceylon. As Mr. Arthur Lampard has lately remarked: "The policy of the authorities appears to be that they consider rubber so profitable that they can tax it without giving anything in return. . . . There is no money for making Port Swettenham into a proper port."

RUBBER IN NIGERIA.

Official reports indicate that under the influence of high prices, combined with the opening up of certain districts in the western province, exports of rubber from Nigeria rose from 1,388,009 pounds valued at \$545,375 in 1909 to 2,634,023 pounds valued at \$1,558,455 in 1910. The respective quantities from Northern and Southern Nigeria in 1910 were 519,943 pounds and 2,123,080 pounds, the preponderance of the latter as a source of rubber being thus illustrated.

Much interest attaches to the experimental tapping of several thousand *Funtumia elastica* trees of the native communal plantations, the rubber being prepared under the supervision of and by members of the Forest Department in the presence of the owners. Rubber of the first quality was prepared by means of simple appliances, easily procurable by the natives. The clear amber-colored biscuits thus obtained were eventually sold in the English market at within 12 cents of the price at the time of the best Pará, while the loss of weight through evaporation of moisture was 37.7 per cent.

Obituary Record.

FRANKLIN FARREL.

FRANKLIN FARREL, president of the Farrel Foundry & Machine Co., died after a few hours' illness on January 9, at his home, Tower Hill, Ansonia, Connecticut. In his death Connecticut lost one of her leading citizens, and New England one of those sterling characters which typify New England at her best. Mr. Farrel is reported to have been possibly the richest man in his state, and to have left a fortune of close to \$15,000,000. But this is not all he left; it is, in fact, the smaller part; for he left a record of a long and useful life, full of wise acts, worthy deeds, and a wide influence for good.

Franklin Farrel came of a good old New England stock and inherited the virtues of strong integrity, sound common sense, and a delight in hard work. He was born in Waterbury, February 17, 1828, being the eldest son of Almon Farrel, a noted mill builder of his day. After a few years' of schooling (about the usual period devoted to education in those days), he began at the age of 14 to assist his father, and first went to Ansonia in that capacity in 1844, when his father was constructing the water works and copper mill at that place. In 1849 the older Farrel became associated with several partners in the foundry firm of Farrel & Johnson, which, a few years later, was reorganized under the name of the Farrel Foundry & Machine Co., Almon Farrel being the president, and remaining in that office until his death in 1857, when he was succeeded by his son Franklin. From 1857 for over 54 years, until the day of his death, Franklin Farrel was the president and dominating factor in this great manufacturing company, which grew in size and success from year to year, and which became in time one of the largest manufacturers of rubber machinery in the world, a position which it has maintained for many years.

Mr. Farrel did not confine his energies to this enterprise, vast as it was. Many years ago he became interested in other factory enterprises in the vicinity of Ansonia, especially the H. A. Mathews Mfg. Co., of Seymour, and the Bridgeport Forge Co., of Bridgeport. He also became a director in the Ansonia National Bank, and the Colonial Trust Co., in Waterbury. But even these enterprises did not engross his time. In 1877, in conjunction with his brother-in-law, A. F. Migeon, he became interested in a large way in mining in Montana. They formed the Parrot Silver & Copper Company, which proved remarkably remunerative. They continued this enterprise until 1899, when they sold their property to the Amalgamated Copper Co. His copper interests added materially to Mr. Farrel's already considerable fortune.

Nor were his activities confined exclusively to this country, for

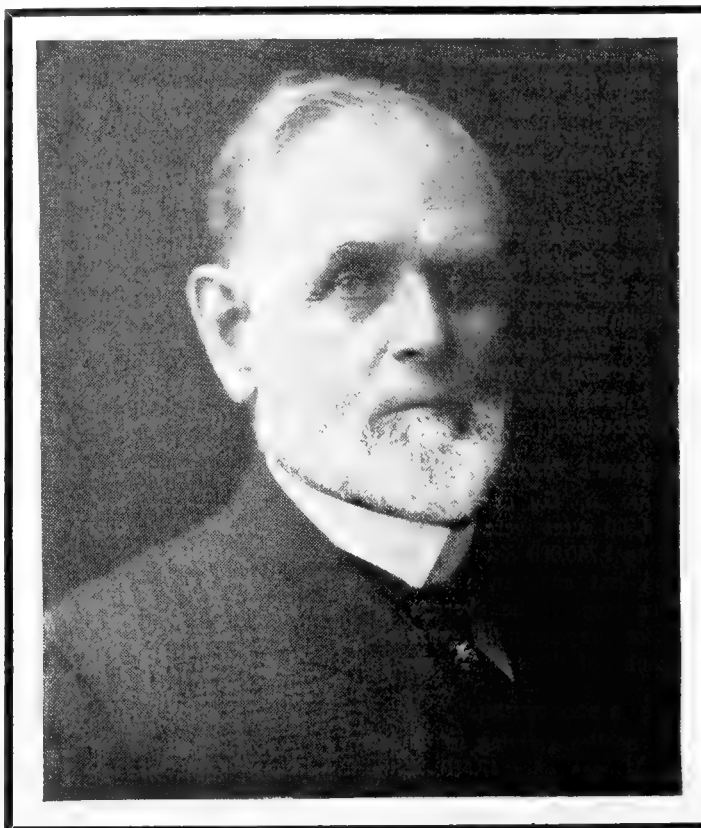
many years ago he added sugar raising to his other interests, and for many years had a large plantation in Cuba and two in Santo Domingo, keeping these properties until 1901.

His commercial activities, however, did not exhaust his energies or his interests, for during all his life he was active in philanthropic and charitable work. He gave liberally of his time and generously of his money to Christ Episcopal Church in Ansonia, of which, at the time of his death, he had been senior warden for 20 years. He was, moreover, a man of most companionable temperament, and exceedingly popular in the social circle in which he moved, and in the various clubs to which he be-

longed while better still he was deeply beloved by all the employees in his various enterprises. The most impressive feature of his funeral was the line of 1,000 workers from the foundry, who, an hour before the funeral, gathered at the great mill, formed in procession, and walked reverently and with every manifestation of sorrow to the church, where the body lay in state, to take their last look on the familiar face, which they had so long respected and loved.

The funeral services were held in Christ Church Saturday morning, January 13, and were attended by a great throng of people from all that section of Connecticut. During the hour of the funeral all the stores in Ansonia were closed, the banks were locked, all the mills shut down, and even the cafes and restaurants closed their doors and drew their shades.

He is survived by his wife, a son, Franklin Farrel, Jr., and four daughters, who deeply mourn his loss.



FRANKLIN FARREL

HON. GEORGE W. CROUSE.

Hon. George W. Crouse, one of Akron's pioneer rubber men, who for many years has been a director of the B. F. Goodrich Co., a close friend of the late Dr. B. F. Goodrich, Mr. Work and Mr. Perkins, died at his home in Akron January 5, 1912.

Mr. Crouse was a member of Company F, 164th Ohio Volunteer Infantry. He was a warm friend of Buchtel College, and donated funds to erect a gymnasium which now bears his name. He was an ardent Republican, and served in many public capacities. In the 80's he represented his district in Congress. He always took a warm interest in anything that benefited Akron, whether public or private. He served on the Board of Education, City Council, as trustee of Buchtel College, and was one of the founders and for many years president of one of Akron's oldest banks. He was founder and one of the most active business men of The Buckeye Mower & Reaper Works. He was associated almost from the beginning with the B. F. Goodrich Co., being a member of the board of directors until the time of

his death. He was patient and considerate, a tireless investigator, an admirable counsellor, and lived a life of intense business activity.

Senator Crouse's whole life was spent in Akron and Summit County except the years on the battlefield and in the halls of Congress. His achievements in the upbuilding of large enterprises, his helpfulness to young men struggling for success in commercial enterprises, and the high type of citizenship for which he stood, make his loss exceptionally felt.

JOSEPH B. SPARKS.

JOSEPH B. SPARKS, aged 74, for 26 years an expert calender man at the plant of the National India Rubber Company, Bristol, Rhode Island, a former president of the Bristol Town Council and well known G. A. R. veteran, died at his home in the Rhode Island town on the morning of January 9 after a two weeks' illness. The funeral was held three days later.

Mr. Sparks was a member of a well-known family and leaves many relatives who are prominent in Bristol affairs. He was a member of Babbitt Post, G. A. R., and served in the Civil War from May 5, 1861 to June 17, 1864. He took part in many battles, from the first at Bull Run to the campaign in the Wilderness where he was slightly wounded in the ankle by a stray bullet.

DENNIS F. SCANLON.

DENNIS F. SCANLON, who for a number of years was a foreman in the plant of the National India Rubber Company at Bristol, Rhode Island, died at his home in that town January 14 from a paralytic shock. During his younger days Mr. Scanlon was prominent in sporting circles. He was 47 years old.

His widow, Mrs. Julia Scanlon, and two children, as well as two brothers and three sisters, survive him.

NEW TRADE PUBLICATIONS.

JOS. FYNNEY & CO., india-rubber merchants and importers, of Liverpool, sent as a New Year's token to their rubber manufacturing friends, a very handsome little pocket diary, enclosed in a leather case, containing various compartments for tickets, stamps, etc. The book, which can be removed from the covers for the insertion of a new one at the end of the year, contains in addition to a diary for 1912, a great deal of valuable statistical matter, especially covering "Loss in Washing" tables as follows:

"Loss in Washing" table. Equivalent of English s. d. per lb.; in cents per lb.; in francs per kilo; in marks per kilo.

English weights table in kilos; total Pará receipts and values; total Antwerp receipts and values; and monthly Pará receipts and values.

Naturally, they have had a great demand for this little book, and have been obliged to confine its distribution solely to their friends in the rubber manufacturing trade.

John Royle & Sons, manufacturers of rubber tubing machines, insulating machines, and other machinery, Paterson, New Jersey, have distributed to their customers a neat little leather bound pocket diary for 1912, including many pages of valuable statistical matter, covering weights and measures, percentage tables, rate of income and stocks, population of the principal cities of the United States, rates of domestic postage, and other similar matter. A very convenient little book.

J. W. Coulston & Co., importers and manufacturers of dry paints and colors, 136 Liberty street, New York, have distributed to users of their products, a small desk memorandum pad, each page covering one week. Alternating pages give much information regarding the products and importations of this concern.

The Adamson Mfg. Co., makers of rubber working machinery, Akron, Ohio, have favored their customers with a handsome wall calendar, 12 x 15 inches, the upper half of which shows a reproduction in color photography, of a painting by the well-

known Scottish artist, H. J. Dobson. The title of the picture is "In the Days of Auld Lang Syne." It shows a humble Scottish kitchen with an old man playing the familiar tune on his ancient violin, while his wife sits by in rapt appreciation.

The Rubber Regenerating Co., Ltd., Manchester, England, has distributed to users of regenerated rubber a fine wall calendar 12 x 16. At the bottom of the calendar there is a pad with a page for each day. As the figures are 4 inches high, and are legible at a considerable distance, this calendar will be particularly serviceable in large offices. Above the pad there is a reproduction of a painting by Sanderson Wells of a hunting scene entitled "The Favorite Meet." With the huntsmen in their red coats, and the hounds alert for the trail, it makes a lively and attractive picture.

The Omo Mfg. Co., Middletown, Connecticut, is sending out its catalogue for 1912. It is a particularly handsome booklet 6 x 9 inches in size, printed in three colors, on heavy coated paper of superior quality, and has an attractive cover in gold, white and blue, deeply embossed. The catalogue which contains 52 pages, describes and illustrates on every page one of the great variety of dress shields made by this company. The Omo Company, by the way, has recently completed an addition to its plant, which more than doubles its former capacity.

The Iroquois Rubber Co., Buffalo, New York, is distributing to the trade a catalogue of 80 pages entitled "Mechanical Rubber Goods of Quality." It illustrates and describes rubber belting, rubber packing, valve disks, rubber hose, steam hose, and many other kinds—rubber tubing, perforated mats and corrugated matting, drain boards, and various other mechanical goods made of rubber.

The December number of "The Chemist-Analyst" comes to hand a few days late owing to the great number of new requests received by the publishers, J. T. Baker Chemical Co., Phillipsburg, New Jersey, for this little publication. It is now being sent to 10,000 people who are interested in chemical analysis.

THE UNITED STATES RUBBER CO.'S 1912 CATALOGUES.

THE UNITED STATES RUBBER CO. distributed, early in January, its catalogues for 1912. These catalogues consist of a very handsome series of 10 books of uniform size, 4¼ x 8½ inches, containing from 52 to 64 pages, and bound in very artistic covers. The 10 covers are all distinct and individual but uniformly fine in design and color effect. A catalogue is devoted to each of the following brands: American, Banigan, Boston, Candee, Glove, Lycoming, Malden, Meyer, Wales-Goodyear, and Woonsocket.

The inside of the catalogues is of the same quality of workmanship as the covers. The paper is heavy and of superior finish, the typography is most tasteful and the half-tone reproductions of rubber boots and shoes are exceptionally good. As they are made direct from photographs, with practically no retouching, they give an exact reproduction of the goods they represent.

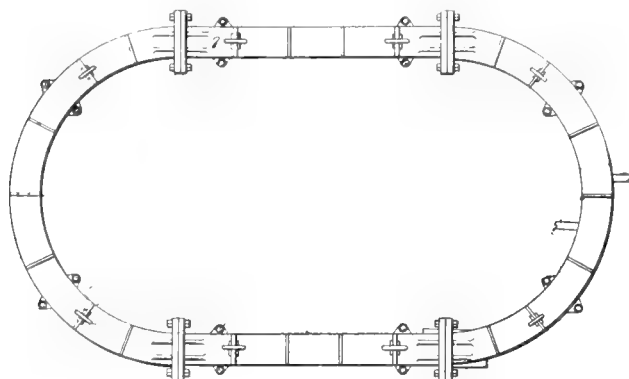
In addition to these 10 large catalogues, there are 2 small ones, also illustrated, one devoted to the "Empire" brand of rubber footwear and the other showing the miscellaneous footwear made by the company, including wool boots, lace felt boots, khaki boots and arctics, and showing also a new boot called the "Acido" boot, intended for workmen in acid works and powder factories where the boot naturally comes in contact with sulphuric acid.

The company follows the plan adopted last year of issuing these catalogues without prices, but with very full descriptions and illustrations, not with the intention of having them distributed to the retail trade, but simply for limited distribution among jobbers, to assist them in the preparation of their own individual catalogues. Further to assist the jobber in his catalogue work, the company is preparing, for immediate distribution, a new edition of its electrotype catalogue, which illustrates all the electrotypes which the company is prepared to furnish the jobbing trade for catalogue use.

A NEW HOSE MOLD.

A MOLD for curing hose in lengths up to five hundred feet at a single operation has been recently designed and perfected by the Adamson Machine Company, of Akron, Ohio.

The new mold, which is the invention of a mold expert, has become the subject of considerable interest, especially among

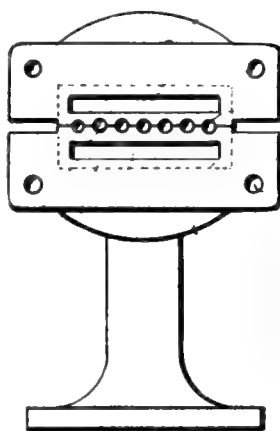


TOP VIEW OF THE MOLD AS THE HOSE IS BEING CURED.

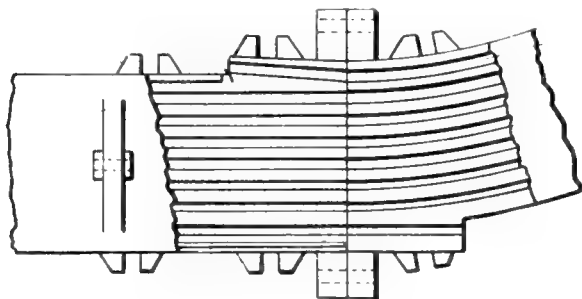
rubber manufacturers of the east, and many orders are in consequence being received: in fact, these molds have been installed by many of the biggest and busiest plants interested in mold work, and are regarded as standard in their line.

In addition to mold work the Adamson company are extensive manufacturers of many types of rubber-making machinery and devices, and its newly erected and equipped foundry and machine shop constitutes perhaps, size considered, one of the best appointed machine plants in the west, and the fact that it is generally taxed to its full capacity indicates the active request for Adamson products.

Mr. Alexander Adamson, the founder of this business, is one of the best-known machinists in the West and is one of Akron's most highly respected and progressive citizens, and he is gen-



CROSS SECTION OF THE MOLD.



SECTION OF THE MOLD SHOWING METHOD OF MAKING CONTINUOUS HOSE.

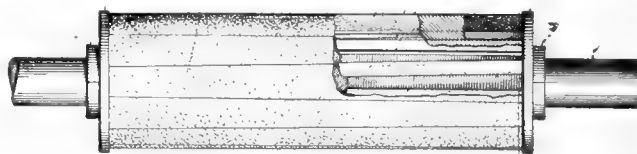
erally regarded in the trade as an expert in all matters pertaining to mold work. In this capacity he is called to rubber mills throughout the country.

The new plant, which was recently completed, was constructed with the sole idea of meeting the requirements of the various lines of mechanical work to which it is devoted, and the labor employed is of the most skilled and best class of mechanics to be obtained in that section.

A NEW SECTIONAL RUBBER SQUEEZE ROLL.

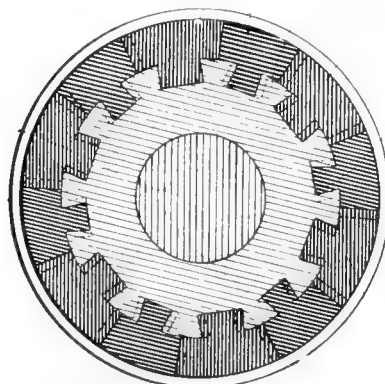
IN machines used for washing wool, rubber-covered rolls are used to squeeze the water from the cleansed material. These rolls are subjected to heavy pressure, and being turned constantly in one direction, the rubber has a tendency to crawl, and separate from the center or shaft, thus becoming practically useless for the work the rolls are intended to perform. There are other mechanical operations in which similar rolls are used, perhaps the most generally known being clothes-wringers for laundry or family use.

To overcome this difficulty on the part of the rubber cover, a metal sleeve is made with a series of longitudinal grooves, wider at the bottom than the top, and in section quite similar to carpenters' dovetails. These grooves are slightly tapering from one



I. F. BURNHAM RUBBER-COVERED ROLL.

end to the other, and fitting into them are sections of rubber, so made that when so fitted they form a cylindrical roll similar in shape to the ordinary rubber covered metal roll. These sections of rubber are tapered, so that they may be arranged alternately with their wider ends at opposite ends of the roll, and proper mechanical means are provided to hold them in place. This



CROSS SECTIONAL VIEW.

arrangement prevents the pressure of an opposing roll from acting upon the whole length of the joints, and obviates any tendency of the joints to open. In a roll thus constructed any one of the rubber strips or sections may be removed and another inserted without disturbing the others.

A modification of the dovetail arrangement of fastening the rubber strips is the use of triangular or cylindrical bars, which fit in grooves in these rubber sections, these bars being adjusted and held in place by nuts by which the strips are compressed, so that the joints are firmly closed. It is obvious that such rolls are far more economical than the old-fashioned solid ones, because, in case of injury or undue wear, only a section needs replacement instead of an entire new roll being required. This roll is the invention of Ira F. Burnham, president of the Stoughton Rubber Co., Stoughton, Mass.

ANOTHER NEW USE FOR RUBBER.

A prominent feature of the Whiteley dry goods palace recently opened in London, is the liberal use of glass for show cases and counters; wooden ones of the old-fashioned type being as far as possible avoided. In the lower part of these glass counters there is inserted an adjustable foot rest covered with rubber, which is intended to protect the counters from the feet of shoppers.

The B. F. Goodrich Co., of Akron, Ohio, has declared a 20 per cent. dividend on its \$10,000,000 common stock, payable in preferred stock. This will increase the preferred stock to \$6,000,000 outstanding.

New Rubber Goods in the Market.

A RUBBER ARCH-SUPPORT.

AMONG the many ills which are all too prevalent may be mentioned flat-foot, or the breaking down of the arch of the foot, a trouble which is relieved by the use of some mechanical appliance which raises the various bones of the foot into proper position, and supports them. Many and various are the arch-

supports on the market for accomplishing this purpose. Most of them are of metal, but it remained for a Boston house to bring out one made of rubber. The Velvet

LEATHER TREAD SURFACE
PURE AMAZON RUBBER

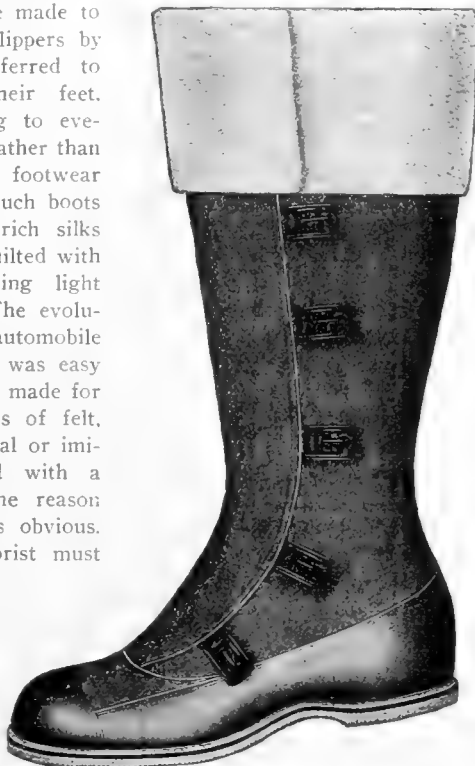


Tread Non-Metallic Arch-Support and Foot Rest is formed of molded rubber of the required shape, perforated to secure proper ventilation, and having a sole leather tread, or cover, which protects the foot from contact with the rubber. This arch-support is claimed to be much lighter than those of metal, is very resilient, and acts on the cartilages and muscles steadily step by step, the rubber gradually and easily forcing the parts into their natural position. [The Frank W. Whitcher Co., Boston, Massachusetts.]

A NEW AUTOMOBILE BOOT.

AUTOMOBILING has brought about many changes and novelties in costume and apparel. One noticeable fact is the wider vogue of the carriage boot, which was formerly in limited demand.

Such boots were made to be worn over slippers by ladies who preferred to thus protect their feet, while proceeding to evening functions, rather than to change their footwear after arriving. Such boots were made of rich silks and brocades, quilted with wool, and having light leather soles. The evolution of the "automobile boot" from this was easy and natural. As made for men's wear it is of felt, trimmed with real or imitation fur, and with a rubber sole. The reason for the latter is obvious. When the motorist must crank his own machine, the felt boot keeps his feet warm, and the rubber soles protect him from the dampness of the street. The



RUBBER SOLE CARRIAGE BOOT.

boot shown herewith is of fine felt, with "firfelt" trimming (the latter keeping its freshness better than fur), and a moderately thick rubber sole. The extensive advertising of this line of boots has resulted in a widespread demand, and an order was recently received for a pair for the Crown Prince of Germany. [The Worcester Slipper Co., Worcester, Massachusetts.]

RECEIVERS FOR WIRELESS OPERATORS.

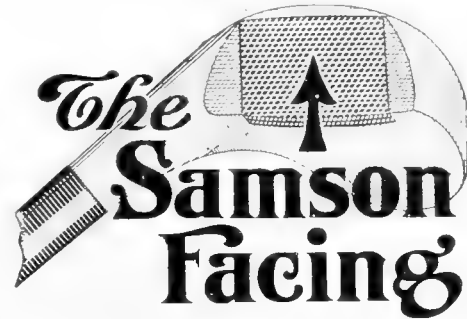
TELEPHONE receivers for wireless operators should have these three qualities in an eminent degree—first, sensitiveness; second, perfect comfort for the operator; and third, permanence of adjustment and construction. The "H-C" wireless operator's receiver is said to possess these three qualities. The windings are all made with silk-covered copper wire. The spools and magnets are mounted in a metal cup and this metal cup is enclosed in a hard rubber shell. A large pneumatic rubber cushion fits over the portion of the receiver which comes in contact with the ear and is much softer and more comfortable than the hard rubber shell, and shuts out all external noises. [The Holtzer-Cabot Electric Co., Brookline, Massachusetts.]



THE "H-C" WIRELESS RECEIVER.

A GOLF CLUB WITH RUBBER FACING.

THE facing on driver or brassie undoubtedly has quite a little to do with the effectiveness of the stick. The Samson facing, which is an English device and is used on various golf clubs, appears to have given excellent results, as several successful competitors in championship contests claim longer drives as a result of its use. It is not affected by the wet, when fitted will not alter the balance of the club; and the player

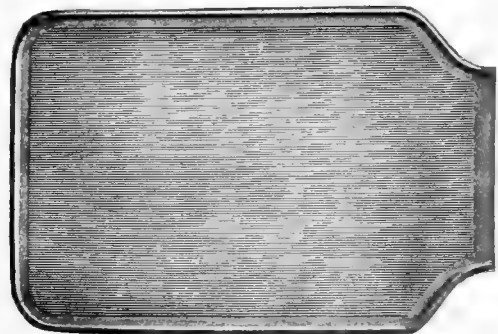


is said to get a better grip on the ball and to be able to drive straighter and farther. [The Samson Golf Syndicate, Limited, London. St. Mungo Manufacturing Co. of America, New York representative.]

A NEW DRAINBOARD MAT.

Something new in the line of plumbers' rubber goods is the "Meruco" drainboard mat.

It is molded of white pliable rubber with a raised rim on three sides, which protects china from slipping off, or chipping on the edge of the drainboard.



THE "MERUCO" DRAINBOARD.

Corrugations run lengthwise on both sides to drain off the water, and from an air chamber under the mat. Having no perforations, it can easily be cleaned with an ordinary brush. [The Mechanical Rubber Co., Cleveland, Ohio.]

SOMETHING NEW IN NIPPLES.

The unusual feature of this nipple is the position of the orifice in the side of the lobe, and this position is marked by a white spot of rubber cemented at the base. The theory, which works out in practice, is the fact that by turning this outlet to the roof of the mouth, it checks the flow of milk, and makes possible slow feeding from a nursing bottle. In every other way the nipple is the same as the ordinary nipple of trade. There are no corrugations or other devices to prevent collapsing, but the position of the hole practically makes this nipple non-collapsible. [Thermolac Manufacturing Co., No. 6 Beacon street, Boston, Massachusetts.]

THERMOLAC
NIPPLE.

WATERPROOFING ROBE AND MOCCASINS.

The new Gordon foot robe is a great boon to the man who drives a motor car in cold, wet or even cool weather. The robes are water and wind proof, and so made that the sides can be drawn under the limbs and fastened, forming a loose trouser robe. Attached to the bottom of the robe is a pair of leather-soled moccasins, lined with soft plush. The feet can be easily shifted in or out as desired, but when inside there is perfect freedom to operate the pedals. [The Vehicle Apron and Hood Company, Columbus, Ohio.]



AN ELASTIC STOCKING THAT KEEPS ITS SHAPE.

The illustration shows an elastic stocking used for varicose veins, enlarged joints, etc., which pulls on like a boot, and does not, even after much use, lose its shape or elasticity. This is accomplished partly by using a good rubber thread and partly be-



THE "MASTER" ELASTIC STOCKING.

cause along the sides of the stocking are sewed non-elastic stays and loops. These do not add appreciably to the weight, nor are they noticeable, but they prolong the life of the stocking wonderfully. These stockings are made of three kinds of materials—heavy silk, fine silk or cotton elastic. [Pomeroy Company, New York.]

At the automobile show at Madison Square Garden there were 84 cars equipped with the Goodyear Tire and Rubber Co.'s tires.

A RUBBER BANDAGE THAT ADMITS THE AIR.

Those who are so unfortunate as to be obliged to wear an elastic bandage know by practical experience the discomfort which it produces because it is so nearly air-proof that it induces perspiration. A new elastic bandage is being placed upon the market which is entirely free from this objection, by the Boston Gore and Web Co. It differs from the ordinary elastic bandage in two important particulars. It is of a novel and peculiar weave which makes it nearly as open as mosquito netting, thus allowing for thorough ventilation while being worn, and it is made with heavier rubber threads than the standard goods of this kind. The makers, who have taken out a patent on this bandage, claim that it is made of specially prepared, soft mercerized yarn, and is put up in a germ-proof and attractive package. [Boston Gore and Web Co., Boston, Massachusetts.]

THE BOSTON GORE
AND WEB CO.
BANDAGE.

AUTOMOBILES ON CREDIT.

In our September issue we mentioned the fact that Fred E. McEwen had formed a company known as the Auto Credit Company, Inc., for the purpose of selling automobiles on a credit basis, the purchaser selecting his car, paying one-half cash and the balance in monthly payments. The Studebaker has now adopted a similar plan. General Manager of the Company Walter E. Flanders says: "I believe the automobile business should be placed on a credit basis, and I think it will prove to be the most important advance that has been made in the automobile industry since its inception.

"There is many a responsible business man and farmer who is eminently able to own an automobile and who yet hesitates to take so much cash out of the reserve on the instant. Then again we find that frugal persons frequently resort to the expedient of paying the ready cash they can afford for an unreliable second-hand or a poorly constructed new car, when by the credit plan they would select a first-class, full-sized automobile, paying part cash and taking time for the balance."

Just how this innovation will affect the profits of automobile manufacturers cannot be prognosticated, but that it will very considerably increase sales goes without saying. Whether the makers of tires will be called upon to share in any of the risks that naturally, to a certain extent at least, accompany business on a credit basis, has not been stated.

THE EXPORTS AND IMPORTS OF AEROPLANES.

To people who have given no thought to the subject of aeroplanes, the information recently collated by the Bureau of Statistics, Department of Commerce and Labor, showing the extent of international commerce in these new articles, will be quite a revelation. These statistics show that more than \$50,000 worth of aeroplanes were imported into, and exported from the United States in the months of July, August and September of the current year. The Bureau of Statistics only began keeping a separate record of this new article of commerce with the opening of the current fiscal year. In the three months for which a record is now available five aeroplanes were exported, all going to Canada, with a total value of \$18,450, or an average valuation of \$3,690 each. On the import side no transactions are given for the month of July, but in the month of August two aeroplanes were imported from France, their combined value being stated as \$15,091. In September the number imported was five valued at \$22,752, one being from England, valued at \$4,700 and five from France, valued at \$18,052, making the total importations of the three months in question eight aeroplanes, valued at \$37,843, or an average valuation of \$4,730 each.

News of the American Rubber Trade.

THE MEETING OF THE AMERICAN RUBBER CHEMISTS.

THE 45th meeting of the American Chemical Society was held in Washington, District of Columbia, December 27 to 30. The meeting was the most successful in the history of the society, there being over 650 members registered.

The rubber section also had one of its most successful meetings, there being over 50 members present at the first session. The following papers were read:

"Scientific Tests and Methods for Rubber Contents in Raw and Vulcanized Rubber," by Dr. Duca; "The Treatment of Crude Rubber," by Francis R. Peabody; "Rubber Goods Required in Beet Sugar Factories," by Victor Hanslick; "Does the Acidity of Rubber Indicate its Botanical Origin?" by L. J. Plumb. Mr. Harry P. Mills, of Torreon, Mexico, sent a paper descriptive of a punching machine for rubber samples, but this was not read, having been received too late.

Besides the discussion of these papers, there was a lengthy discussion on the subject of synthetic rubber. The following subjects were also taken up and discussed: The formation of the rubber molecule, the effects of oils and other adulterants in reclaimed rubber, the use of sublimed white lead in rubber compounds and its exclusion from such compounds by certain specifications.

At the business meeting of the section, held on December 30, a complete reorganization took place, the manufacturing interests taking an active part in the reorganization. Mr. D. A. Cutler, of the Rubber Goods Manufacturing Company, was elected chairman, Mr. D. Whipple, of the Safety Insulated Wire & Cable Company, was elected secretary, and these two gentlemen, together with Messrs. Geer, of the Goodrich Company; Boggs, of the Simplex Electrical Company; and Fay, of the Boston Woven Hose & Rubber Company, were elected the Executive Committee for the ensuing year. The Executive Committee was empowered to appoint a new committee on standard methods of analysis, and such other committees as it might deem fit.

Messrs. Cutler and Geer announced that all the money necessary to carry on the work of the committee on methods of analysis would be forthcoming. Mr. Geer announced also that his company would be pleased to detail three of its chemists to carry on the work of the committee, and also to furnish the necessary room for them to work in. Offers along the same line were made by other manufacturers present.

OFFICERS OF THE SOUTHLAND RUBBER CO.

At the last annual meeting of the Southland Rubber Co., a corporation with a plantation in the department of Palenque, State of Chiapas, Mexico, but whose corporate home is in Spokane, Washington, the following officers were elected: Dr. George K. McDowell, president; J. W. Oakes, vice-president; Charles E. Brown, secretary; James W. Boothe, treasurer. The officers and J. B. Rogers, Dr. Harry S. Martin and E. B. Bird comprise the board of directors.

RUBBER AND CELLULOID HARNESS TRIMMING CO.—ANNUAL.

At the annual meeting of the Rubber and Celluloid Harness Trimming Co., Newark, New Jersey, held on January 9, directors were elected as follows: Andrew Albright, Jr., E. A. Spurr, Mathew Dunlap, David Lockwood, Thomas Kays and Edward G. Robertson. The company reports a prosperous year's business. Officers were elected by the board as follows:

President—ANDREW ALBRIGHT, JR.
Vice-President—E. A. SPURR.
Secretary—THOMAS KAYS.
Treasurer—EDWARD G. ROBERTSON.

SHAWMUT TIRE CO. OF NEW YORK.

There has been such a demand for Shawmut tires that it has been thought best to organize a company to be devoted exclusively to the manufacture of these goods. The name of the company is the Shawmut Tire Co. of New York, and the ware-rooms will continue to be located at 256 West Fifty-fifth street, New York. The officers of the company are as follows:

President—W. G. PAGE.
Treasurer and Secretary—C. C. MARSTON.
Sales Manager—J. E. LANCASTER.

THE IMPERIAL-GORDON RUBBER CO.

The Imperial-Gordon Rubber Co., which is a reorganization of the Imperial Rubber Manufacturing Co., Canton, Ohio, has the following officers:

President—C. W. KEPLINGER.
Vice-President and Manager—A. E. GORDON.
Secretary and Treasurer—C. J. KEPLINGER.
Factory Manager—E. S. CURRENT.

MASSACHUSETTS AUTOMOBILE CLUB.

At the annual meeting of the Massachusetts Automobile Club, Boston, Massachusetts, held January 13, the following officers were elected:

President—FRANK E. PEABODY.
First Vice-President—WILLIAM H. AMES.
Second Vice-President—CHARLES J. SHRINER.
Secretary—WILLIAM A. ROLFE.
Treasurer—GEORGE R. ALLEY.

HODGMAN RUBBER CO.—ANNUAL ELECTION.

At the annual meeting of the Hodgman Rubber Co. (New York), held under date of January 18, 1912, the following officers were re-elected:

President—G. B. HODGMAN.
Vice-President—F. A. HODGMAN.
Treasurer—S. T. HODGMAN.
Secretary—A. W. WARREN.

THE MILLER RUBBER CO. INCREASES ITS STOCK.

At a special meeting of the stockholders of the Miller Rubber Co., of Akron, Ohio, held in December, it was voted by them to increase the capital stock of the company from \$500,000 to \$1,000,000, and the directors were authorized to offer for sale to present stockholders, \$200,000 of the new stock at par, which would entitle each one to purchase 40 per cent. of their present holdings. It was also decided to have the new issue paid for as follows: One-eighth on February 1, 1912, and an eighth every sixty days thereafter, up to and including April 1, 1913. One-half of the new stock will be issued on the first day of August, 1912, to such stockholders as have paid for it according to their subscriptions; and the remaining one-half will be issued on the first day of April, 1913, to such stockholders as have at that time fully paid the amount of their subscriptions.

In the event that any of the stockholders wish to pay for any or all of the stock in advance, the company will allow them interest at 6 per cent. up to the time of the maturity of each installment. The directors of the company believe that the company can continue to pay its present rate of dividend on its increased capital.

There have recently been made at the Morgan & Wright factory, Detroit, a limited number of sample tires for test purposes of a size 8 x 38, which are the largest pneumatic tires ever made. Four of these tires have been used on a Morgan & Wright truck, with satisfactory results. A single tire weighs 115 pounds, the inner tube weighing 15 and the shoe 100 pounds.

TRADE NEWS NOTES.

Hon. L. D. Apsley, president of the Apsley Rubber Co., Hudson, Massachusetts, has among his possessions a pair of child's croquets, which were part of the first lot made by that company, being the first pair removed from the first vulcanizer of footwear. They bear the "Middlesex" brand, this company's seconds; yet after the lapse of a dozen or fifteen years they are still elastic and resilient.

Two very large Western manufacturers of shoes, who also have been large jobbers of rubber footwear, The Peters Shoe Co. and Roberts, Johnson & Rand Shoe Co., have consolidated under the name of the International Shoe Co., and incorporated with an authorized capital of \$25,000,000.

L. A. Halley, formerly with the Consolidated Tire Company, has assumed the management of the Chicago branch of the Motz Tire & Rubber Company.

The paragraph that has been floating around the press of the country to the effect that The B. F. Goodrich Co., Akron, Ohio, intended to open a branch factory in Spokane, Washington, is an error, as the company has no intention of building a factory at that point. The paragraph evidently arose from the fact that the company is planning to open a service depot at Spokane, which is quite a different matter.

The Staunton Dielectric Rubber Co., Muskegon, Michigan, announces a change of name. Because of a possible confusion in names, the company will hereafter be known as the Vulcanized Products Co., and its dielectric material called Dielectrite, will be renamed *Gohmak*.

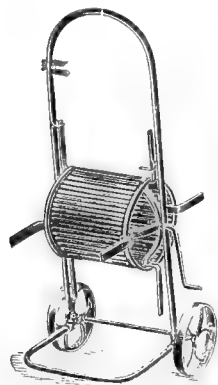
R. R. Drake, of the United States Tire Co., estimates that since the beginning of 1907 the tire makers of America have marketed in the neighborhood of 8,000,000 pneumatic tires, the yearly output, according to his figures, being as follows: 1907, 900,000; 1908, 1,050,000; 1909, 1,350,000; 1910, 1,800,000; 1911, 2,900,000; total, 8,000,000. His estimate for 1912 is 4,000,000 tires.

A new rubber company called the Sanitary Reversible Syringe Co. has been formed in Memphis, Tennessee, and intends soon to establish a factory in that city for the purpose of manufacturing sanitary reversible syringes, and probably other rubber goods. The sanitary reversible syringe is one that can be turned wrong side out, like a stocking, and used either way equally well.

AN EXCELLENT HOSE REEL.

THE hose reel known as Wirt's W. & K. No. 2, made by the Wirt & Knox Manufacturing Co., of Philadelphia, is an exceptionally complete and convenient affair. It is light, weighing only 15 pounds when packed for shipment, and it is exceedingly

strong, as it is made entirely of metal, the frame being constructed of the best tubular steel, the wheels of cast iron, the drum of galvanized iron, and the drum arms of solid steel. The drum, as will be noticed from the cut, is corrugated. This enables the air to get under the hose when reeled and prevents mildewing. The drum being 9 inches in diameter also prevents the hose from being too tightly wound. The cut also shows the little catch towards the top of the frame, which can be adjusted at any height; this holds the nozzle when the hose is in use and is a very convenient device. The reel is quite handsome in appearance, with enameled green frame, galvanized drum and black wheels. It holds 100 feet of $\frac{3}{4}$ -inch hose.



WIRT'S W. & K. NO. 2 HOSE REEL.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for five weeks, ending January 27:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend, January 31, 1912—1%.

Week	December	30	Sales	4,700 shares	High	48	Low	47
Week	January	6	Sales	7,100 shares	High	49	Low	47 $\frac{3}{4}$
Week	January	13	Sales	3,500 shares	High	48 $\frac{7}{8}$	Low	47 $\frac{1}{2}$
Week	January	20	Sales	600 shares	High	47 $\frac{1}{4}$	Low	46 $\frac{1}{2}$
Week	January	27	Sales	900 shares	High	47	Low	46 $\frac{3}{8}$

For the year—High, 49, January 3; Low, 46 $\frac{1}{4}$, January 16.
Last year—High, 48 $\frac{1}{2}$; Low, 30 $\frac{1}{2}$.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, January 31, 1912—2%.

Week	December	30	Sales	300 shares	High	110 $\frac{7}{8}$	Low	110 $\frac{1}{8}$
Week	January	6	Sales	300 shares	High	110 $\frac{1}{4}$	Low	110 $\frac{1}{4}$
Week	January	13	Sales	1,375 shares	High	111	Low	110 $\frac{3}{4}$
Week	January	20	Sales	700 shares	High	111	Low	109 $\frac{3}{4}$
Week	January	27	Sales	100 shares	High	110 $\frac{1}{4}$	Low	110 $\frac{1}{4}$

For the year—High, 111, January 3; Low, 109 $\frac{3}{4}$, January 19.
Last year—High, 115 $\frac{1}{2}$; Low, 104.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, January 31, 1912—1 $\frac{1}{2}$ %.

Week	December	30	Sales	300 shares	High	75 $\frac{7}{8}$	Low	75
Week	January	6	Sales	200 shares	High	76	Low	76
Week	January	13	Sales	100 shares	High	76 $\frac{7}{8}$	Low	76 $\frac{1}{2}$
Week	January	20	Sales	... shares	High	..	Low	..
Week	January	27	Sales	300 shares	High	75 $\frac{1}{2}$	Low	75

For the year—High, 76 $\frac{1}{8}$, January 8; Low, 75, January 23.
Last year—High, 79; Low, 66.

SIX PER CENT. TRUST GOLD BONDS, \$19,000,000.

Outstanding of the 1908 issue of \$20,000,000.

Week	December	30	Sales	27 bonds	High	104 $\frac{3}{8}$	Low	104 $\frac{1}{4}$
Week	January	6	Sales	55 bonds	High	104 $\frac{3}{8}$	Low	103 $\frac{3}{4}$
Week	January	13	Sales	47 bonds	High	104 $\frac{3}{8}$	Low	104
Week	January	20	Sales	33 bonds	High	104 $\frac{1}{3}$	Low	103 $\frac{7}{8}$
Week	January	27	Sales	109 bonds	High	104 $\frac{3}{4}$	Low	104 $\frac{1}{8}$

For the year—High, 104 $\frac{3}{4}$, January 27; Low, 103 $\frac{3}{4}$, January 6.
Last year—High, 105; Low, 101 $\frac{3}{4}$.

COMMON STOCK.

	1906.	1907.	1908.	1909.	1910.	1911.
Shares sold..	607,800	175,277	191,200	517,411	239,666	485,157
Highest price.	59 $\frac{1}{2}$	52 $\frac{1}{2}$	37 $\frac{1}{2}$	57 $\frac{7}{8}$	52 $\frac{1}{2}$	48 $\frac{1}{2}$
Lowest price.	38	13 $\frac{1}{2}$	17 $\frac{1}{2}$	27	27	30 $\frac{1}{2}$

Highest 1911, Dec. 16; lowest, Sept. 25; closing, 47 $\frac{3}{4}$.

FIRST PREFERRED STOCK.

	1906.	1907.	1908.	1909.	1910.	1911.
Shares sold..	123,760	120,108	94,400	199,512	91,849	46,327
Highest price.	115	109 $\frac{7}{8}$	108	123 $\frac{1}{2}$	116 $\frac{1}{2}$	115 $\frac{1}{2}$
Lowest price.	104 $\frac{3}{4}$	61 $\frac{1}{4}$	76	98	99	104

Highest 1911, July 7; lowest, Sept. 25; closing, 110 $\frac{1}{2}$.

SECOND PREFERRED STOCK.

	1906.	1907.	1908.	1909.	1910.	1911.
Shares sold..	59,845	31,203	21,131	61,790	19,406	23,510
Highest price.	87 $\frac{1}{2}$	78 $\frac{1}{8}$	75 $\frac{1}{2}$	80 $\frac{1}{2}$	84	79
Lowest price.	75	39	42	67 $\frac{1}{2}$	59 $\frac{1}{2}$	66

Highest 1911, Mar. 1; lowest, Sept. 26; closing, 75.

SIX PER CENT. TRUST GOLD BONDS.

	1906.	1907.	1908.	1909.	1910.	1911.
Bonds sold					3,631	2,437,000
Highest price					104 $\frac{1}{2}$	105
Lowest price					101 $\frac{3}{4}$	101 $\frac{3}{4}$

Highest 1911, April 28; lowest, Sept. 26; closing, 104 $\frac{1}{4}$.

THE board of directors of the United States Rubber Company on January 4 declared from its net profits a quarterly dividend of 2 per cent. on the first preferred stock (including all outstanding old "preferred" stock), a quarterly dividend of 1 $\frac{1}{2}$ per cent. on the second preferred stock, and a quarterly dividend of 1 per cent. on the common stock of the company to stockholders of record at 3 p. m. on Monday, January 15, 1912, payable without closing of the transfer books, January 31, 1912.

Alfred C. Eggers and Ludwig T. Eggers, composing the firm of Eggers Bros. & Co., announce the closing of a co-partnership with William S. Pounds. The business will hereafter be conducted under the firm name of Egger Bros. & Pounds, importers and brokers of crude rubber, gutta-percha and balata, at 16 Exchange place, New York.

COLONEL COLT REGAINS CONTROL

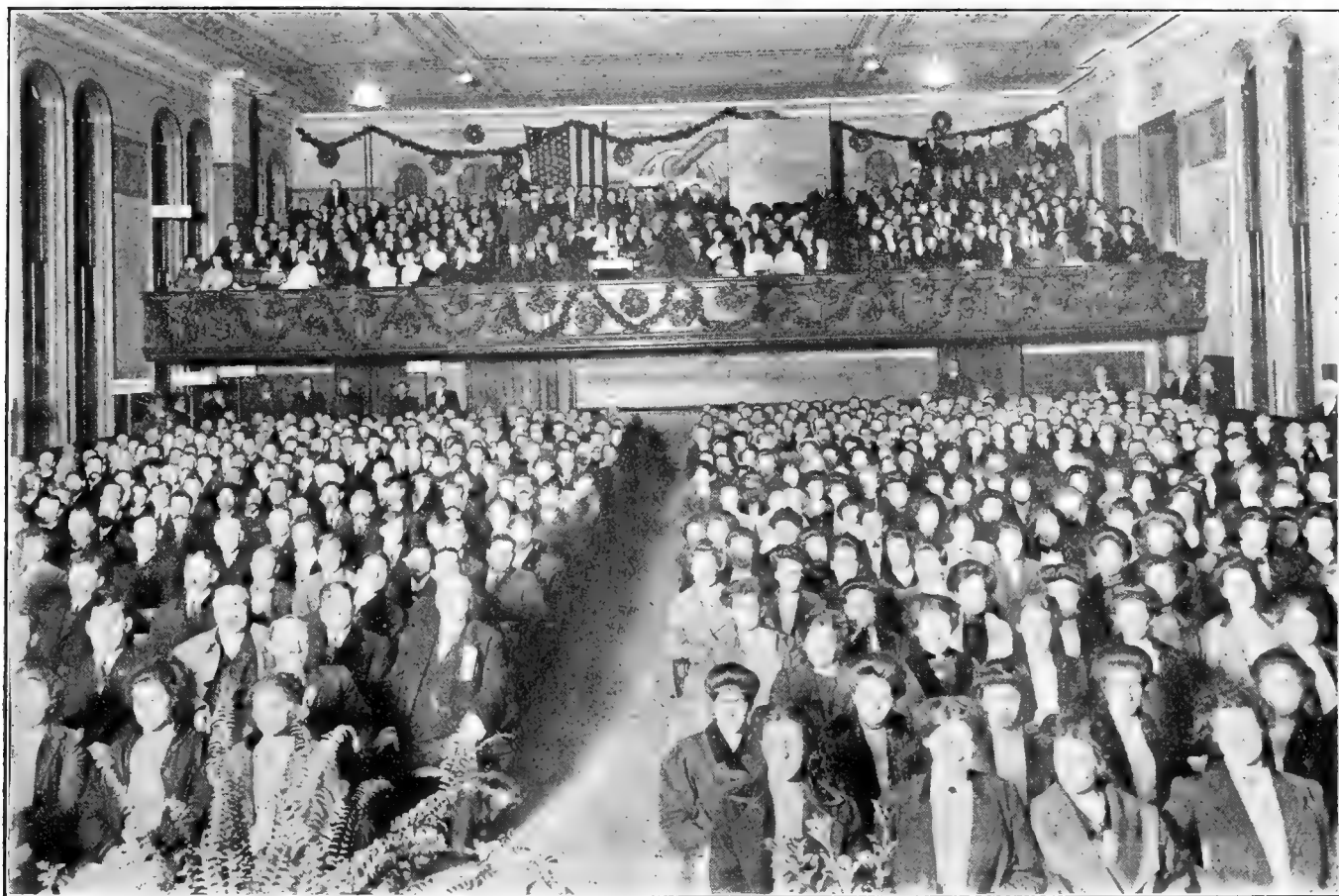
Colonel S. P. Colt, president of the United States Rubber Company, has regained control of the Industrial Trust Company of Providence, Rhode Island, after one of the warmest contests ever waged in the financial affairs of that State. The annual meeting of the stockholders, which took place January 16, lasted from noon until after 6 in the evening, and was attended by the largest gathering in the history of the institution, more than 150 persons being present. H. Martin Brown, Colonel Colt's candidate, won by a large margin, as did the list of officers nominated by the Colt faction. The actual number of shares voted was 26,934, of which H. Martin Brown had 15,426 and C. P. Brown 11,255.

MR. APSLEY ENTERTAINS HIS EMPLOYEES.

In these days when so much is being said about the benefits which accrue both to the employer and to the employee from the employer's active interest in the welfare, physical, mental and moral, of his employees, it is interesting to chronicle anything done in this line by members of the rubber trade.

was given over to dancing until a late hour. It is quite an undertaking to provide so elaborate an entertainment for such a large number, but there is no doubt that it is distinctly worth while, as it tends to create a friendly feeling on the part of the employee toward the employer, which greatly facilitates the work of the factory. At the beginning of the evening Mr. Apsley delivered a short address to the company, part of which is here appended.

"As president of the Apsley Rubber Company, it is my pleasure to extend to you the season's greetings, and to wish you, one and all, a most enjoyable time tonight, and prosperity for the coming year. I take this occasion to thank you all for your faithful service. I am a great believer in co-operation; and I believe that those who try to do their duty as best they can, get the most out of life and reap the greatest reward; so I am going to ask you, as you have done in the past, to be loyal to the company; to try to perform your duties with a smile, so far as possible; and to put an extra push or *roll* into your work, and to see that the product of this factory is made right. By so doing you will bene-



THE APSLEY EMPLOYEES LISTENING TO ILLUSTRATED LECTURE.

The Hon. L. D. Apsley, president of the Apsley Rubber Co., Hudson, Massachusetts, has always shown a lively interest in the operatives of his big mill, and during the recent holiday season, following his general policy, he invited the 900 people employed in his rubber mill to a triple entertainment, given in the town hall of Hudson. In fact, it was a quadruple entertainment, beginning with a fine band concert, which began early in the evening, followed by an entertaining travel lecture, with moving pictures describing and illustrating interesting scenes in European countries. This continued until 9 o'clock, and then the entire 900 guests sat down to a substantial banquet, prepared by the proprietor of one of the Hudson hotels, and after this the time

fit the whole people; and you, individually, will reap direct reward, because, if your work is well done, it means that this factory will run more hours, and that you will have more steady work, which means prosperity for the whole town and your employers."

AN ARTISTIC PAPER WEIGHT.

The Arkay Rubber Company, of New York, has favored its customers with a very pretty paper weight, having a brass standard measuring about 2 by 3½ inches, on top of which is mounted a metal reproduction of the company's trade mark. It is just the right size and weight for a paper weight, and is an ornament to any desk.

NEW INCORPORATIONS.

Acme Automatic Tire Pump Co., November 15, 1911; under the laws of Ohio; authorized capital, \$50,000. Incorporators: Francis J. Carroll, Francis J. Houlihan, and Emil R. Rosenthal. To manufacture and deal in automatic pumps, automobiles, automobile accessories and supplies.

The Aetna Rubber Co., November 24, 1911, under the laws of Ohio; authorized capital, \$20,000. Incorporators: H. E. Johnson, C. M. McEachren and R. C. Ellis. Location of principal office, Cleveland, Ohio. To manufacture all kinds of articles, substances, etc., of which rubber is a component part.

Airease Tire Filler Co., January 6, 1912, under the laws of Delaware; authorized capital, \$100,000. Incorporators: W. F. P. Lofland, W. I. N. Lofland and John S. Collins, Jr., all of Dover, Delaware. To deal in automobiles, motor cycles, tires and tire fillers.

Amerital Manufacturing Co., January 16, 1912, under the laws of New York; authorized capital, \$200,000. Incorporators: William O. Turrell, 720 West One Hundred and Eighty-first street; Salvador Seognamillo, 209 East One Hundred and Sixteenth street, and Lester W. Schwartz, 100 Morningside avenue, all of New York. Location of principal office, New York. To manufacture auto wheels, tires, etc.

The L. M. Anderson Co., January 3, 1912, under the laws of New Jersey; authorized capital, \$60,000. Incorporators: Ernest O. Machlin, Arthur J. Anderson and Howard A. Lee, all of Trenton, N. J. To buy, produce, sell, trade and deal in any and all kinds of crude, refined and manufacturing rubber, etc.

The Boonton Rubber Manufacturing Co., December 13, 1911, under the laws of New Jersey; authorized capital, \$300,000. Incorporators: Richard P. Messiter, Frederick Gordon, and Edwin A. Fisher, all of Boonton, New Jersey. To manufacture and sell goods, wares, etc., of any sort or description, of which rubber or Bakelite is a component part.

Burgess Patent Tire and Manufacturing Co., December 21, 1911, under the laws of Missouri; authorized capital, \$300,000. Incorporators: John W. Burgess, George F. Burgess and D. T. Smith, all of Brookfield, Missouri. Location of principal office, Brookfield, Missouri. To manufacture, buy, sell and deal in and with auto tires, etc.

Carroll Tire Co., November 25, 1911, under the laws of New York; authorized capital, \$20,000. Incorporators: John Gregson, Geo. Cunliffe and J. Edward Gregson, all of Buffalo, New York. Location of principal office, Buffalo, New York. To manufacture rubber tires.

The Chemical Rubber Co., December 29, 1911, under the laws of Illinois; authorized capital, \$150,000. Incorporators: J. J. Lamkey, J. C. Evans, and Frank P. Hatter. Location of principal office, 332 S. Michigan avenue, Chicago, Illinois. To manufacture and deal in chemicals, chemical rubber, etc.

The Cincinnati Garter Co., December 4, 1911, under the laws of Ohio; authorized capital, \$50,000. Incorporators: Clarence E. Schaffner, Walter P. Dolle and L. B. Folger. To manufacture and sell garters, suspenders, belts and similar articles.

Congo Tire and Rubber Co., December 18, 1911, under the laws of New York; authorized capital, \$1,000. Incorporators: Karl V. Roosa, 277 Broadway; David Morris, 26 Oliver street, and Abraham Levy, 277 Broadway, all of New York. Location of principal office, Manhattan.

Copeland Casterline Co., December 30, 1911, under the laws of New York; authorized capital, \$10,000. Incorporators: John N. Copeland, Chauncey H. Casterline, and Vola F. Copeland, all of Hornell, New York. Location of principal office, Jamestown. To manufacture rubber goods, etc.

The Crown Raincoat Co., December 23, 1911, under the laws of Ohio; authorized capital, \$25,000. Incorporators: F. M. Keyser, L. M. Keyser and P. C. Rose. Location of principal office, Columbus, Ohio. To deal in waterproof clothing at wholesale and retail.

The Electric Rubber Reclaiming Co., December 8, 1911, under the laws of Ohio; authorized capital, \$200,000. Incorporators: John C. Frank, Frank E. Ream and D. F. Felmly. Location of principal office, Akron, Ohio. Object, reclaiming vulcanized rubber, etc.

Fort Dearborn Rubber Goods Co., January 10, 1912, under the laws of Illinois; authorized capital, \$5,000. Incorporators: Charles E. Kirkwood, John F. Rau and D. G. Ramsay. To manufacture and deal in rubber and rubber goods.

The Imperial Gordon Rubber Co., December 13, 1911, under the laws of Ohio; authorized capital, \$300,000. Incorporators: C. W. Keplinger, Chas. J. Loichat and A. V. Hug. To manufacture, sell and buy rubber and rubber products, and articles made, or compounded wholly or partially of rubber.

The International Pneumatic Wheel Co., January 9, 1912, under the laws of Indiana; authorized capital, \$100,000. Incorporators: Walter S. Johnson, W. H. Alford and Fletcher Johnson. To buy, sell, deal in and manufacture pneumatic wheels, machinery, etc.

The International Shoe Co., December 27, 1911, under the laws of Missouri; authorized capital, \$25,000,000. Incorporators: Jackson Johnson, John C. Roberts and Frank C. Rand, all of St. Louis, Missouri. To engage generally in the boot and shoe manufacturing business and to manufacture all articles in whole or in part from rubber, etc.

Nashville Rubber Hat Protector Co., December 28, 1911, under the laws of Tennessee; authorized capital, \$25,000. Incorporators: Norman E. Harris, R. E. Donnell and Oury Harris, all of Nashville, Tennessee. To buy, sell and deal in a useful novelty for the covering or protection of hats.

Palm Gum Tire Seal Co., December 14, 1911, under the laws of Illinois; authorized capital, \$1,500. Incorporators: William Swords, Jr., Harry H. Du Chesne, and William Turnbull. To manufacture compounds and compositions for the purpose of sealing holes in inflated rubber tires.

Peckham Sanitary Rubber Co., December 21, 1911, under the laws of New York; authorized capital, \$5,000. Incorporators: Frederick A. Stroh, 400 East One Hundred and Thirty-ninth street, New York; Anna V. Kinealy, Brooklyn, New York. Location of principal office, Manhattan. To manufacture rubber goods.

Regal Rubber Co., December 22, 1911, under the laws of New York; authorized capital, \$5,000. Incorporators: Berel Tolk, 187 Henry street; David Tolk, 334 Grand street, and Abraham Samilson, 236 Madiscn street, all of New York. Location of principal office, Brooklyn. To manufacture rubber goods.

Roller Polisher Co., December 22, 1911, under the laws of Maine; authorized capital, \$100,000. Incorporators: Henry Mitchell, C. F. Smothers, both of Kittery, Maine. To buy, sell, improve, deal in, etc., rubber and various other chemicals and compositions.

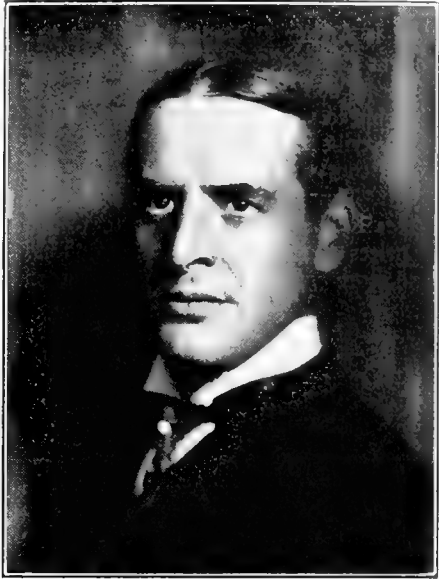
Shawmut Tire Company of New York, Inc., January 16, 1912, under the laws of New York; authorized capital, \$5,000. Incorporators: Clarence C. Marston, South Weymouth, Massachusetts; Wallace G. Page, Brookline, Massachusetts, and Alexander S. Campbell, 54 Wall street, New York. To deal in rubber tires. Location of principal office, New York.

Victoria Waterproof Co., December 30, 1911, under the laws of New York; authorized capital, \$20,000. Incorporators: Joseph Dube, Meyer Reingold and Frida Dube, all of Brooklyn, New York. Location of principal office, Manhattan. To manufacture rubberized coats, etc.

A number of business men of Sacramento, California, who are stockholders in the Roblito Rubber Plantation Co., situated in southern Mexico, are making a tour of inspection of this property, devoting several weeks to the trip.

MARCUS ALLEN WITH THE FEDERAL RUBBER MANUFACTURING CO.

THE Federal Rubber Manufacturing Co. of Milwaukee has announced the appointment of Marcus Allen as manager of its New York branch, with headquarters in New York City. Mr. Allen was formerly connected with the Empire Tire Co., and later took



MARCUS ALLEN.

the management of the New York branch of the G. & J. Tire Co. of Indianapolis. Inasmuch as former officials of the G. & J. Tire Co. are now at the head of the Federal company, Mr. Allen will be with his former business associates. Having a wide acquaintance in the pneumatic tier trade, and an enviable record, Mr. Allen should prove a marked success in his new position.

CALENDARS RECEIVED.

The Quaker City Rubber Company, Philadelphia, Pennsylvania, has issued a calendar, 12 by 20 inches in size, reproducing in colors a bird's-eye view of its plant at Wissinoming, Pennsylvania, and giving a brief list of its various products. The calendar itself is in the form of a pad, with one page allotted to each month, and printed in good-sized legible figures.

The American Wax Co., Boston, Massachusetts, has sent to its customers a large wall calendar 20 by 30 inches, which not only shows the days of the month, but indicates also the days of the year, which in many offices is an additional convenience.

The Lebanon Mill Co., manufacturers of knitted fabrics, Pawtucket, Rhode Island, have favored their customers with a particularly handsome wall calendar, reproducing, in large size, the painting entitled "Those Bewitching Eyes," by Harrison Fisher. The reproduction is made in the photo-color process by Brown & Bigelow. It is one of the finest of the 1912 calendars.

The Walpole Rubber Co., New York, has distributed a wall calendar with a scene emblematic of progress and prosperity. In the foreground is an allegorical female figure, clad in scarlet robes, indicative of peace and plenty. In the background are smoking mills, whirling railroads, ocean liners and aeroplanes.

James Boyd & Bro., Inc., manufacturers of fire protection equipment, belting hose, packing and valves, Philadelphia, issue to their customers a calendar diary in the form of a memorandum pad, with a page for each week. The size is $5\frac{1}{2} \times 8\frac{1}{2}$ inches and it is a convenient addition to a desk. It is mounted on a cardboard, which contains a calendar for the entire year 1912 and the first six months of 1913.

PERSONAL MENTION.

John H. Pearce, who has, for a number of years, been superintendent of the L. Candee & Co. rubber factory at New Haven, Connecticut, has resigned to become general superintendent of the rubber footwear department of the Canadian Consolidated Rubber Co., Limited, of Montreal. George Schlosser, who has for many years been superintendent of the Woonsocket Rubber Co. mill, succeeds Mr. Pearce.

Robert S. Emerson, son of C. A. Emerson, purchasing agent of the United States Rubber Co., has been appointed by Judge Tanner permanent receiver of the Consumers' Rubber Co., of Bristol, Rhode Island.

J. M. Cummings, manager of the California branch of the Michelin Tire Co., has recently returned from an extended trip to the Hawaiian Islands, and states that there is an excellent field for high-grade cars in the islands, most of them being bought by planters and other prosperous residents. He states at the same time that there is very little market for second-hand cars, showing that the islands seem to lack what might be called the "middle-class" purchaser.

According to a statement in "The Montreal Star," D. Lorne McGibbon, president of the Canadian Consolidated Rubber Co., Limited, states that the business of that company for November last reached close to the million mark, which is the company's record for a single month.

Edgar B. Davis, vice-president and a director of the General Rubber Co., of New York City, left New York, January 24, on the White Star liner "Olympic," for a business trip of several months in the Far East. His headquarters will be at Singapore, and his work will take him to Sumatra, Japan and India. The trip will be the fifth in the last five years.

Chester J. Pike, who is known to almost everyone in the footwear trade from his former connection, lasting for many years, with the United States Rubber Co., has resigned from the Congress Shoe and Rubber Co., Boston, to associate himself with A. W. Ellis Advertising Agency, of that city.

A. Staines Manders, organizing manager of the Rubber Exhibition to be held in September next in the Grand Central Palace, will arrive in New York about the middle of February, after a long tour through Europe. Mr. Manders has elicited the sympathy of all countries, and the success of the exposition in all departments is assured. Mr. Manders will be at the Grand Central Palace, 46th and 47th streets, Lexington avenue, daily, and will be pleased to see any one interested in the exposition.

TRADE NEWS NOTES.

The directors of Katzenbach & Bullock Co., Trenton, New Jersey, at their annual meeting declared the regular dividend of 6 per cent. on the preferred stock. Mr. Welling S. Katzenbach reported that the outlook for 1912 business was so favorable that it seemed advisable to increase the company's capital stock in order to have the necessary working capital to handle the increased volume of business. Accordingly at the special stockholders' meeting held January 19 it was voted to increase the capital to \$50,000.

The New York section of the Society of Chemical Industry held an informal dinner at the Chemists' Club, No. 52 East Forty-first street, New York city, on the evening of January 19. After the dinner the Perkin medal was presented to Herman Frasch, and then a general discussion of the subject of Sulphur took place.

A Fairport, New York, motorist writes the Fisk Rubber Co., New York, that he has used the same set of their tires on a Marion touring car for five seasons without having a puncture or blowout, or taking a single tire off the rim.

SOME LATE STYLES OF RUBBER GARMENTS.

The four illustrations below give a good idea of some of the latest rubber garments that are being offered by the leading mail order houses and department stores of New York and Chicago.

The first figure shows a woman's garment in rubberized *moiré* silk. It is double-breasted, fits fairly tight, has patch pockets and turned-back cuffs, with tailored collar. It comes in navy blue, smoke gray or black.

The second cut shows a young girl's garment. This is made of rubberized poplin, has Raglan sleeves, patch pockets, a buttoned turn-over collar, and is a thoroughly serviceable garment for a young girl.

The third cut shows a man's rubber coat made of black rubber sheeting. This coat is double-breasted, with a protector collar, has outside pockets with flaps, and is lined.

The fourth figure shows a boy's heavy rubber coat lined with khaki. It fastens in front with hook fasteners, and the collar is close fitting. It is light in weight and warm.

These four illustrations give a very good idea of the rubber coats offered this winter for men, women and children.

United States Rubber Co., and is now an officer in the Computing-Tabulating-Recording Co., of New York, states that the Hollerith tabulating machine, which is one of the machines handled by this company, is being very extensively introduced into the rubber trade, six or eight of the largest rubber companies having installed them in their service.

A Waterbury paper announces that the S. M. B. Rubber Co., whose president is Arthur C. Squires, will not in all probability be located, as was the original intention, at Naugatuck, Connecticut, but will locate somewhere in New Jersey. This change of plans is attributable to the fact that the business men of Naugatuck did not subscribe for as large an amount of stock as the company believed they would.

The New York "Times" quotes Colonel S. P. Colt, president of the United States Rubber Co., as commenting on the stability of crude rubber prices during the past six months as compared with a year and more ago, and assigning the reason for the same as follows:

"This highly gratifying change was due to several facts. In the first place, the speculators found a very limited market for



NEW RUBBER COATS SHOWN THIS WINTER.

TRADE NEWS NOTES.

The Daily Consular and Trade Reports state that a European business man wishes to get into communication with a large American manufacturer of rubber tires for automobiles. It does not seem as if it ought to be difficult for a European business man to get in touch with American manufacturers of automobile tires. There are several of them and they are quite well known.

They are much exercised in Portland, Maine, over the discovery that the "asbestos" which was wrapped about the furnace pipes in an important building in that city caught fire and was the cause of a considerable conflagration. As asbestos is supposed to prevent this very thing, this particular "asbestos" was examined and found to be an extraordinary imitation made of coarse hair in conjunction with a little asbestos liquid, covered with white paper and held together with metal bands. It is said that quite a quantity of this same sort of "asbestos" has been put into buildings in that city.

H. M. Sadler, who was for so many years identified with the

rubber at the top prices, and consequently they were obliged to lower their quotations to get buyers. But most important of all was the large increase in the volume of Ceylon grades produced and placed on the market steadily. Not only was the volume of those grades a potent factor in bringing about the lower prices, but their quality was quite as effective.

"The trade found that, because of the more scientific methods used in treating those grades of rubber, they could be marketed much more quickly than the Brazilian grades, and could be substituted for them to a far greater extent than had been supposed or had really been possible.

"The Ceylon grades are to be more and more of a factor in the general rubber industry, and, in my opinion, it will be extremely difficult to bring about abnormally high prices again for the crude product. In other words, the prices for both it and manufactured products should be much more stable than heretofore. Otherwise I am unable to mention at the moment any notable changes in the rubber industry."

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED DECEMBER 5, 1911.

- N**O. 1,010,539. Wheel tire. F. Vitali, Healdsburg, Cal.
 1,010,558. Flexible arm and mitten. C. Williamson, Norfolk, Va.
 1,010,621. Detachable rim for wheels. J. W. Hall and Cyril Baynes, London, England.
 1,010,656. Hose reel. J. Martyn, Detroit, Mich.
 1,010,699. Pneumatic massage tool. C. O. Sobinski, St. Louis, Mo.
 1,010,751. Boot tree for use in treeing machines. A. H. M. Grune, Pirmasens, Germany.
 1,010,786. Wheel. E. J. Nelson, Alliance, A. & F. H. Lang, Havlock, both in Nebraska.
 1,010,884. Cross-chain for anti-skid devices. F. H. Fox, New York.
 1,010,885. Anti-skid chain. F. H. Fox, New York.
 1,011,013. Vehicle tire. A. Beldam, Baldock, England.
 1,011,069. Rubber-boot jack. J. H. McKechnie, Montreal, Quebec, Canada.
 1,011,090. Fire hose and analogous tubing constructed of laminated cohesive interwound members having varying limits of elasticity. L. A. Subers, Cleveland, Ohio.
 1,011,091. Resilient wheel. J. A. Suddarth, St. Joseph, Mo.

Trade Marks.

- 58,419. Revere Rubber Co., Chelsea, Mass. A picture of a rubber heel. For heels and soles of boots and shoes.

ISSUED DECEMBER 12, 1911.

- 1,011,155. Tire-splicing mandrel. C. C. Chamberlain, Ionia, Mich.
 1,011,305. Pneumatic tire. J. G. A. Kitchen, Lancaster, and I. H. Story, Ambleside, England.
 1,011,345. Tire clamp for vehicle wheels. F. M., J. S. and W. W. Hilton, Akron, Ohio.
 1,011,397. Hose reel. E. Anderson, Dayton, Ohio.
 1,011,450. Tire-wrapping machine. A. De Laski, Wechawken, and P. D. Thropp, Trenton, N. J.
 1,011,460. Pneumatic tread for boots and shoes. E. Maddocks, assignor of one-half to J. McNair, both of Toronto, Canada.
 1,011,471. Pneumatic tire. W. A. McCool, Beaver Falls, Pa.
 1,011,668. Manufacture of shoes. J. T. Tebbutt, Three Rivers, Quebec, Canada.
 1,011,679. Resilient wheel. J. Vollman, assignor of one-third to P. De Vogel, both of Racine, Wis.
 1,011,760. Cushion heel for boots and shoes. E. F. Diez, St. Louis, Mo.
 1,011,807. Manufacture of rubber shoes. P. Kane and A. B. Griggs, Granby, Quebec, Canada.
 1,011,865. Hose supporter. S. T. Shephard, Albany, N. Y.
 1,011,894. Tire. W. H. Reed, Hartford, Conn., assignor to Revere Rubber Co., Providence, R. I.

Trade Marks.

- 50,954. Pennsylvania Rubber Co., Jeanette, Pa. The monogram *I* and *C* intertwined. For rubber vehicle tires.
 57,511. Montag Bros., Atlanta, Ga. The word *Ironclad*. For surgical, dental and medical appliances.
 58,391. American Belting & Tanning Co., Boston, Mass. Picture of life buoy, with words *life buoy*. For leather belting, pneumatic leather packing, etc.
 58,416. The Gutta Percha & Rubber Mfg. Co., New York. The word *Wallabout*. For mechanical rubber goods.

ISSUED DECEMBER 19, 1911.

- 1,012,030. Compound plastic material. W. Hunnewell, Underwood, N. Y.
 1,012,098. Tire inflator. E. Rector, New York.
 1,012,159. Protection and anti-skidding armor for pneumatic tires. C. Reichel, Amsterdam, N. Y.
 1,012,161. Process for making fillers for tires. F. T. Roberts, New York.
 1,012,195. Suction cleaner. F. A. English, assignor to Birtman Electric Co., Chicago, Ill.
 1,012,232. Process for making hollow articles from plastic material. Bernard Balg, Gölitz, Germany.
 1,012,247. Spare tire cover. H. Cohen, New York.
 1,012,299. Hand-grip. H. U. True, Brighton, Mass.
 1,012,325. Tire protector. J. O. Caldwell, Jr., assignor of one-half to J. O. Caldwell, Sr., both of Boston, Mass.
 1,012,353. Tire protector. J. C. Hammer, Chicago, Ill.
 1,012,367. Detachable wheel rim. K. Kindscherf, assignor to Continental-Caoutchouc & Gutta-Percha Compagnie, both of Hanover, Germany.
 1,012,375. Tire. F. H. Lathrop, Chicago, Ill.
 1,012,459. Vehicle tire. A. L. Siegrist, Akron, Ohio.
 1,012,473. Nipple cap. A. Stern, Frankfort-on-the-Main, Germany.
 1,012,502. Elastic connecting device. J. F. Atwood, Claremont, N. H.
 1,012,541. Method of treating trees for extracting sap. J. T. Gilmer, Mobile, Ala.
 1,012,543. Antiseptic rubber-dam holder. C. A. Hallett, Riverhead, N. Y.

Designs.

- 41,994. Tire tread. W. T. Dorgan, Saginaw, Mich.

Trade Marks.

- 50,131. I. B. Kleinert Rubber Co., New York. The word *Kimono*. For dress shields.
 54,610. United and Globe Rubber Manufacturing Cos., Trenton, N. J. *U. and G.* Descriptive title. For rubber belting, hose, etc.
 55,259. The Goodyear Tire & Rubber Co., Akron, Ohio. Picture of a band or stripe. For elastic vehicle tire treads.
 58,345. Barrett Mfg. Co., New York. The words *Black Diamond*. For waterproofing and insulating compositions.
 59,030. Sears, Roebuck & Co., Chicago, Ill. The word *Profile*. For leather and rubber footwear.
 59,333. Behrend & Rothschild, New York. The trade mark *B. & R.* For rubber toys and pacifiers.

ISSUED DECEMBER 26, 1911.

- 1,012,597. Heel. J. L. Church, Bellingham, Wash.
 1,012,636. Shoe. W. E. Hemenover, assignor to the B. F. Goodrich Co., both of Akron, Ohio.
 1,012,653. Massage brush. B. D. Knickerbocker, Chicago, Ill.
 1,012,879. Gripping device for securing auxiliary or spare rims to automobile wheels. A. Manson, Paris, France.
 1,012,898. Air valve for pneumatic tires. F. M. Neal, Bridgeport, Conn.
 1,012,951. Shoe for tires. Cyrus A. Whyland, Marion, Mass.
 1,012,978. Collapsible shoe-tree. C. A. Bowron, New York.
 1,012,980. Artificial palate. T. W. Brophy, Chicago, Ill.
 1,013,011. Wheel rim. Henry J. Graves, Kensington, London, England.
 1,013,063. Vulcanizing device. J. M. Robbins and J. F. Crew, Rochelle, Tex.
 1,013,085. Tire for vehicle wheels. W. T. Whitlock, assignor to the Fisk Rubber Co., both of Chicopee Falls, Mass.

Trade Marks.

- 15,457. A. W. Faber, Stein, Germany. The name *A. W. Faber*. For stationery.
 15,458. A. W. Faber, Stein, Germany. The initials *A. W. F.* For stationery.
 16,288. The Canfield Rubber Co., Bridgeport, Conn. The word *Canfield*. For waterproof fabrics.
 58,946. Keystone Roofing Mfg. Co., York, Pa. The name *X-L-Oid*. For rubber roofing.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1911.

*Denotes Patents for American Inventions.

- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 6, 1911.]
 19,028. Improvements in molded tires. W. Drury, Fulham, London.
 19,100. Rubber connections for electrical heating appliances. H. Lofquist, Stockholm, Sweden.
 19,122. Tire attachments to rims. F. & A. Probert, Llanelly, Wales.
 *19,162. Pneumatic cushions on vehicle wheels. L. R. Gruss, Chico, Cal., U. S. A.
 19,296. Rubber-tapping knives. H. Oliver, 49 West Brook Bank, Sheffield.
 *19,317. Seamless hollow rubber articles. G. D. Farnam, Akron, Ohio, U. S. A.
 19,328. Composition of cotton impregnated with rubber. G. Metcalfe, Christchurch, New Zealand.
 19,332. Improvements in tread bands. W. G. Skew, 47 Devonshire Mews, South, London.
 19,432. Rubber heel pads. J. Wilmshöfer, Düsseldorf, Germany.

- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 13, 1911.]
 19,512. Fitting of tread bands. F. Little, Fenham, New Castle-on-Tyne.
 19,595. Vehicle shock absorber. C. K. Mills, 23 Southampton Buildings, London.
 19,651. Tire attachments to rims. W. C. Sneyd, Sale, Cheshire, and D. V. Jones, 5 Cumberland street, Manchester.
 19,730. Improvement in coagulation of latex. J. S. da Costa, Para, Brazil, and R. Bridge, Castleton, Lancashire.
 19,739. Re-forming waste rubber. H. H. Tarver, Branstone, Burton-on-Trent.
 19,800. Packing for pipe joints. W. E. Lake, 7 Southampton Buildings, London.
 19,853. Flexible compositions for use as rubber substitutes. T. D. Kelly, Southend-on-Sea.
 19,867. Knitted insertions in rubber articles. E. C. R. Marks, 58 Lincoln's Inn Fields, London.
 19,973. Improved pneumatic cushion on wheels. R. Simpson and E. Wallace, 56 Moorgate street, London.
 20,017. Rubber tires on roller skates. M. Wunderlich, Rosenheim, Bavaria, Germany.

- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 9, 1911.]
- 20,190. Rubber rollers for printing. A. Ashley, Melbourne, Australia.
- 20,191. Rubber rollers for printing. Avon India Rubber Co., Melksham.
- 20,192. Rubber rollers for printing. R. Roudeau, 61 Rue de Valenciennes, Paris.
- 20,193. Rubber rollers for printing. A. A. Plank, Blaxey, New South Wales, Australia.
- 20,194. Rubber rollers for printing. H. F. Beach, Birmingham.
- 20,195. Tire gaiters. A. Buxton, Levenshulme, Manchester.
- 20,196. Rubber rollers for paper feeding appliances. T. Ruppel, Stassburg, Germany.
- 20,197. Rubber strips in shoes. A. Bryan, Kettering.
- 20,198. Rubber sleeve valves. J. A. C. Wieldt, and Warner, Wright and Rowland, Birmingham.
- 20,199. Rubber bands in wheel rims. L. Graab, C. Lenhardt and F. Lenhardt, Mannheim, Germany.
- 20,200. Use of portulak or other similar substance in sealing compositions. J. C. Talaferro, Baltimore, Maryland, U. S. A.
- 20,201. Attachments to wheels for preventing slipping. H. Bird, Rotherhithe street, London.
- 20,202. Rubber tapping knives. H. Rayne, Witulamu, British East Africa.
- 20,203. Pneumatic cushions on vehicle wheels. J. Lees, Hutton Mount, Essex.
- 20,204. Rubber tension springs for vehicles. F. Walton, 114 Holborn, London.

- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 9, 1911.]
- 20,633. Improvements in attachments of tires to rims.
- 20,634. Rubber protection for electric coils. Special Fabrik fur Gummi- und Spulen- und Leitungen Ges., Berlin, Germany.
- 20,635. Rubber pads in foundations for machinery, etc. F. C. Peters, 26 Elham Road, Kensington, and E. J. Fisk, 13 New Street Hill, Shoe Lane, London.
- 20,636. Rubber valve plugs. R. H. Patterson, Edinburgh, and A. D. Adams, London.
- 20,637. Improvements in tread bands of pneumatic tires. F. H. Roberts, Leyland, Lancashire.
- 20,638. Tools for repairing tires. A. Kendrick, Hooton.
- 20,639. Improvements in cushion heels. E. R. Teet, Anderson, Indiana, U. S. A.
- 20,640. Extra rubber cover for tires. W. Gummer, St. John's Wood, London.
- 20,641. Rubber cutting for children's cycles. J. A. Hill, Waverton, near Chester.
- 20,642. Re-forming of rubber. H. Tarver, Branstone, Burton-on-Trent.
- 20,643. Rubber blocks on spring wheels. A. Belkam, Babcock, Hartford, Conn.
- 20,644. Improvements in molding rubber. E. B. Keller, 57 Queen Victoria Street, London.
- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, DECEMBER 30, 1911.]
- 21,186. Razor wipers of rubber. G. Clark, Brockley, London.
- *21,275. Detachable rubber heels. A. B. Heimbach, Duluth, Minnesota, U. S. A.
- 21,318. Rubber pads in carriage window sashes. A. J. Dennett, Anerley, London.
- *21,338. Pneumatic springs. B. Bell, 5301 Chester avenue, Philadelphia, Pa., U. S. A.
- 21,360. Tools for removing tires. G. Scott, Denny, Stirlingshire.
- 21,364. Improvements in tread bands of tire covers. J. F. F. W. Ue, 12 Sloane Court, London.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

- 429,507 (May 8, 1911). F. Tolkein. Composition to replace rubber and process of making same.
- 429,519 (May 9). L. Liais. Improvements in pneumatic tire covers.
- 429,546 (May 9). E. Reigelsen. Imperforable pneumatic tire.
- 429,567 (May 10). O. Fromond. Pneumatic suspension of vehicles.
- 429,664 (May 12). H. A. Wanklyn. Improvements in substances for stopping holes in pneumatic tires and in methods of their insertion.
- 429,711 (May 15). J. H. Brown and D. A. Berry. Improvements in rubber shoes.
- 429,855 (April 21). J. Cairns. Improvements in vehicle tires.
- 429,867 (May 2). F. Keller-Kurz. Vehicle tires.
- 429,876 (July 28, 1910). O. Grenier. Elastic non-pneumatic vehicle tires.
- 429,967 (May 19, 1911). J. O'Brien. Machine for inserting and fixing steel rivets in pneumatic tires.
- 429,968 (May 19). M. Bovy. Pneumatic wheel without air chamber.
- 429,997 (May 20). C. A. E. Putois. Soft vehicle tire.
- 430,048 (May 23). M. Clark. Pneumatic cushion tire for automobiles and other vehicles.
- 429,879 (May 23). E. Van den Kerkhoff. Process of manufacture of plastic masses resembling gutta-percha.
- 430,061 (May 23). N. J. Busby. Improvements in vehicle tires.
- 429,959 (May 19). Gebrüder Erdmann and F. Rudolph. Process of applying rubber to the manufacture of billiard cues.
- 430,192 (April 26). A. Boerner. Elastic tires for automobiles and other vehicles.
- 430,226 (May 26). J. Marx. Process and appliances for making leather covers for pneumatic tires.
- 430,253 (May 27). J. Anthony. Covers for pneumatic tires.
- 430,275 (May 29). T. S. MacGiehan. Pneumatic tires and processes for their manufacture and adjustment.

- 430,183 (April 11). F. Gossel and A. Sauer. Artificial rubber extracted from concentrated Soya oil and process for its manufacture.
- 430,344 (May 31). J. Ellwood Lee Company. Improvements in pneumatic tires.
- 430,232 (May 26). Electro Chemical Rubber & Manufacturing Co. Process for the manufacture of rubber on metal.
- 430,386 (June 1). C. G. Kleinschmidt. Wheel with pneumatic tire, with divided rim.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Robet, Ingenieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

- 241,887 (from January 16, 1910). Klaas Peter Boerma. Wandsbek b. Hamburg. Production of elastic horn-like substance from casein.
- 241,878 (from January 31, 1911). Walter Ruhm, Berlin. Hose coupling, with vertical valves.
- 242,019 (from April 23, 1911). Henry Hamet, Paris, and Louis Monnier, Lille. Coagulation of rubber from freshly collected latex.
- 242,486 (from June 1, 1910). Maurice Carlton Clark, La Crosse, Wisconsin, U. S. A. Press for vulcanizing rubber articles.
- 242,467 (from July 16, 1908). Dr. Ludwig Berend, Aix-la-Chapelle. Production of elastic masses from nitro- or acetyl-cellulose.
- 242,597 (from September 22, 1909). Maurice Ferdinand de Redon de Colombier, Paris. Pneumatic tires for heavy vehicles.
- 242,629 (from October 25, 1910). Louis Schopper, Leipzig. Appliance for defining elasticity of rubber and like substances.
- 242,756 (from August 9, 1910). Peter Kottelchner, Vienna. Process for making asbestos belting in various widths.
- 242,819 (from April 5, 1911). Walther Leede, Brunswick. Flexible hose for pneumatic conveying.

THE KINGDOM OF BELGIUM.

- 238,694 (1911). J. Gathy, Mons. New filler for rubber.
- 238,449 (1911). A. Olier & Co., Clermont-Ferrand, France. Vulcanizing press.
- 238,546 (1911). H. Hoffmann and G. Schneider, Ohlum, near Hohenhameln and Bekum, near Hohenhameln (Germany). Appliance for cutting and destroying parasitical plants.
- 238,050 (1911). J. Aktschourin, Aktschourinski Tubik, Kasan Railway Station (Russia). Process for production of a brown ligneous mass (chemi-cellulose) by means of resinous wood.
- 237,775 (1911). M. W. Fink and A. Kobiolke, Middle Brighton, near Melbourne, Australia. Process for manufacture of objects partially or wholly composed of rubber.
- 237,627 (1911). G. Brioschi, Milan, Italy. Improvements in rubber covers for pneumatic tires.
- 237,740 (1911). L. Liais, Rue de la Pompe, 129 bis Paris. Improvements in rubber fabrics for covers of pneumatic tires.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of the values of exports of manufactures of india-rubber and gutta-percha for the month of November, 1911, and for the first eleven months of five calendar years:

Months.	Belting, Packing and hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
November, 1911.....	\$176,459	\$77,583	\$592,909	\$846,951
January-October	1,909,154	1,487,563	5,935,113	9,331,830

Total, 1911.....	\$2,085,613	\$1,565,146	\$6,528,022	\$10,178,781
Total, 1910.....	1,918,611	2,094,016	5,193,806	9,206,433
Total, 1909.....	1,637,018	1,474,559	3,978,186	7,089,763
Total, 1908.....	1,131,272	1,224,799	3,255,507	5,611,578
Total, 1907.....	1,294,460	1,532,595	3,643,744	6,470,799

The above heading "All Other Rubber," for the month of November, 1911, and for the first eleven months of the current year, includes the following details relating to tires:

Months.	For Automobile	All Other.	Total.
November, 1911.....	values \$177,210	\$45,738	\$222,948
January-October	2,080,517	480,915	2,561,432
Total,	\$2,257,727	\$526,653	\$2,784,380

AN EXCELLENT TIRE LUBRICANT WHICH MAKES the inner tube much easier to put in is flake graphite, which is said to last longer than soapstone and to be better for the rubber. In fact the graphite does not injure the rubber at all. It, however, is not particularly pleasant to handle.

Review of the Crude Rubber Market.

THE better feeling which characterized the opening of the year in the London market was reflected in the advanced prices obtained at the auctions of the 3rd, and maintained in subsequent transactions. At the close of the first week the price of 4s. 3½d. for up-river fine had advanced to 4s. 4½d.

For the more distant positions buyers displayed a fear of the repetition of the enhanced activity which marked the operations of last February. In this connection the reported comparative reduction in stocks as compared with that period is considered as being to a certain extent offset by the prospects of larger supplies in the future. The fact is, however, urged that the demands of consumption in 1911 practically absorbed all the production, and a feeling of confidence is said to prevail.

Fine grades of rubber displayed a marked preference on the part of English buyers, as compared with medium descriptions: this feature of demand being illustrated by the increasing volume of London forward business in plantation rubber. The relative cheapness of the hard cure is being realized.

Interest in the latter part of the month was more or less directed to the continental auctions. That of Amsterdam realized good prices for relatively small offerings, while that of Havre was marked by material advances. A distinctly noticeable upward movement was reported at Antwerp, which brought some African grades above the parity of Pará, buyers taking all the offerings, consisting of about 280 tons, principally Congos. From the activity thus displayed, it is considered that certain continental manufacturers must find African rubbers very suitable for their purposes. American manufacturers have, it is reported, been using African rubbers largely.

By sympathy an advance was obtained in London on Pará, which touched 4s. 8½d. on the 27th. Much interest was being displayed in the London plantation sales scheduled for January 30th.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and January 30—the current date.

PARÁ.	Feb. 1, '11.	Jan. 1, '12.	Jan. 30, '12.
Islands, fine, new.....	112@113	96@97	108@109
Islands, fine, old.....	none here	98@99	110@111
Upriver, fine, new.....	124@125	104@105	111@112
Upriver, fine, old.....	128@129	108@109	114@115
Islands, coarse, new.....	65@66	62@63	64@65
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	96@97	89@90	94@95
Upriver, coarse, old.....	100@101	none here	none here
Cametá.....	69@70	63@64	66@67
Caucho (Peruvian) ball.....	94@95	88@89	94@95
Caucho (Peruvian) sheet.....	none here	none here	none here

PLANTATION PARÁ.

Fine smoked sheet.....	140@141	115@116	133@134
Fine pale crepe.....	124@125	119@120	131@132
Fine sheets and biscuits.....	118@119	115@116	127@128

CENTRALS.

Esmeralda, sausage.....	90@91	86@87	92@93
Guayaquil, strip.....	none here	none here	none here
Nicaragua, scrap.....	88@89	83@84	91@92
Panama.....	none here	none here	none here
Mexican, scrap.....	86@87	84@85	90@91
Mexican, slab.....	50@51	53@54	54@55
Mangabeira, sheet.....	68@70	62@63	none here
Guayule.....	60@61	53@54	60@62
Balata, sheet.....	82@84	81@82	89@90
Balata, block.....	58@68	53@54	56@57

AFRICAN.

Lopori ball, prime.....	109@110	101@102	109@110
Lopori strip, prime.....	none here	none here	105@106
Aruwimi.....	105@106	100@101	106@107
Upper Congo ball, red.....	109@110	none here	112@113

Ikelemba.....	none here	none here	none here
Sierra Leone, 1st quality.....	105@106	89@90	95@96
Massai, red.....	106@107	90@91	102@103
Soudan, Niggers.....	94@95	none here	none here
Cameroon ball.....	62@63	62@63	69@70
Benguela.....	75@76	64@65	72@73
Madagascar, pinky.....	none here	none here	none here
Accra, flake.....	40@41	26@27	27@28

EAST INDIAN.

Assam.....	90@91	none here	none here
Pontianak.....	6@6½	none here	5½@5¾
Borneo.....	none here	none here	none here

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine.....	4\$750	Upriver, fine.....	5\$700
Islands, coarse.....	2\$600	Upriver, coarse.....	4\$500
		Exchange.....	16 3/16d.

Latest Manáos advices:

Upriver, fine.....	5\$750	Exchange.....	16 2/16d.
Upriver, coarse.....	4\$550		

New York.

IN REGARD to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During January there has been a good demand for paper, both from New York banks and out of town, the best rubber names ruling at 4½@4¾ per cent., and those not so well known 5@5½ per cent."

NEW YORK PRICES FOR DECEMBER (NEW RUBBER).

	1911.	1910.	1909.
Upriver, fine.....	\$1.04@1.07	\$1.36@1.50	\$1.75@1.93
Upriver, coarse.....	.90@.93	1.00@1.05	1.11@1.21
Islands, fine.....	.95@1.01	1.19@1.25	1.64@1.72
Islands, coarse.....	.60@.64	.70@.73	.69@.72
Cametá.....	.60@.65	.72@.76	.79@.82

SUMMARY OF PRICES FOR 1911.

	UPRIVER.		ISLAND.		CAMETA.
	Fine.	Coarse.	Fine.	Coarse.	Coarse.
January.....	115@130	90@98	100@115	62@69	64@73
February.....	128@168	98@120	115@156	65@90	68@95
March.....	145@166	108@118	130@156	62@90	79@92
April.....	118@145	88@110	112@135	60@63	75@80
May.....	93@128	82@89	92@122	58@67	67@76
June.....	95@103	81@85	91@98	58@63	67@71
July.....	99@117	82@96	92@110	58@63	70@75
August.....	109@117	95@99	102@109	61@63	66@68
September.....	113@120	94@99	106@112	62@64	66@68
October.....	100@112	90@96	96@107	56@63	60@66
November.....	99@106	87@91	93@100	57@60	60@62
December.....	104@107	90@93	95@101	60@64	60@65

AVERAGE PRICES.

1911.....	118¼	95	110¼	64	70½
1910.....	201¼	136¼	189¼	90	100
1909.....	159¼	107	149¼	66¼	77
1908.....	93¼	67½	88¼	47½	52
1907.....	109¼	88	104½	61¾	65½
1906.....	124½	93½	121	70	72¼

MORSE'S STATISTICS OF NEW YORK ARRIVALS.

	1908.	1909.	1910.	1911.
Fine Pará.....tons	12,164	11,982	10,274	10,818
Coarse Pará.....	5,152	5,609	4,622	5,074
Plantation Ceylon.....		1,730	3,611	6,556
Centrals.....	5,598	4,961	4,636	4,316
East India and Africans...	6,563	6,847	9,773	8,324
Total.....	29,477	31,129	32,916	35,088
a Including Caucho.				

African Rubbers.

NEW YORK STOCKS (IN TONS.)

December 1.....	140	July 1, 1911.....	90
January 1, 1911.....	115	August 1.....	90
February 1.....	115	September 1.....	112
March 1.....	11	October 1.....	67
April 1.....	98	November 1.....	45
May 1.....	98	December 1.....	60
June 1.....	90	January 1, 1912.....	58

Statistics of Para Rubber (Excluding Caucho).

		NEW YORK.			Total		
		Fine and Medium.		Coarse.	1911.	1910.	1909.
Stocks, November 30	...tons	305	53	=	358	156	218
Arrivals, December	.....	1,310	431	=	1,741	1,533	2,675
Aggregating	.....	1,615	484	=	2,099	1,689	2,893
Deliveries, December	.....	1,325	442	=	1,767	1,478	2,686
Stocks, December 31	....	290	42	=	332	211	207
		PARA.			ENGLAND.		
		1911.	1910.	1909.	1911.	1910.	1909.
Stocks, November 30	tons	3,050	1,190	1,385	935	1,335	500
Arrivals, December	....	3,455	2,315	3,140	884	1,248	960
Aggregating	.....	6,505	3,505	4,525	1,819	2,583	1,460
Deliveries, December	....	3,830	2,830	4,375	994	1,093	1,075
Stocks, December 31	..	2,675	675	150	825	1,490	385
World's visible supply, December 31	...tons				1911.	1910.	1909.
Para receipts, July 1 to December 31	....				14,635	13,400	14,970
Para receipts of caucho, same dates	.....				1,760	2,370	1,840
Afloat from Para to United States, Dec. 31					1,300	435	916
Afloat from Para to Europe, Dec. 31	....				720	1,080	700

Rubber Stock at Para

A further reduction has brought down the stock to just one-half of the highest point reached in 1911, of 5,350 tons on May 31.

1911.	Tons.	1911.	Tons.
January 31	2,085	July 31	3,884
February 28	3,787	August 31	3,450
March 31	4,214	September 30	3,102
April 30	5,104	October 31	3,320
May 31	5,350	November 30	3,050
June 30	4,545	December 31	2,675

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

1911.			
July 7	4/2½	October 20	4/6½
July 14	4/5½	October 27	4/4
July 21	4/7	November 3	4/3
July 28	4/8	November 10	4/4½
August 4	4/7½	November 17	4/3
August 11	4/7½	November 24	4/3½
August 18	4/7½	December 1	4/4½
August 25	4/10½	December 8	4/5½
September 1	4/8½	December 15	4/4½
September 8	4/9	December 22	4/4
September 15	5/	December 29	4/3½
September 22	4/10½	January 5	4/4½
September 29	4/8	January 12	4/5½
October 6	4/7	January 19	4/5½
October 13	4/5		

British Crude Rubber Imports.

OFFICIAL statistics for calendar years, stated in pounds:

YEAR.	Imports.	Exports.	Net Imports.
1898	54,833,072	33,023,536	21,809,536
1899	50,360,912	34,284,320	16,076,592
1900	57,593,312	32,864,832	24,728,480
1901	52,245,088	32,904,704	19,340,384
1902	46,970,000	32,676,112	14,293,888
1903	54,443,760	37,658,768	16,784,992
1904	55,555,584	33,415,536	22,140,048
1905	66,464,944	37,464,112	29,000,832
1906	67,992,624	36,988,336	31,004,288
1907	74,736,928	39,090,912	35,646,016
1908	64,407,392	40,153,792	24,253,600
1909	78,406,944	44,567,488	33,839,456
1910	98,220,528	52,401,664	45,818,864
1911	101,480,424	63,804,384	37,676,240

GUTTA-PERCHA.

YEAR.	Imports.	Exports.	Net Imports.
1898	7,082,656	1,151,136	5,931,520
1899	9,239,664	840,224	8,399,440
1900	14,118,608	1,709,792	12,408,816
1901	9,905,056	1,224,832	8,680,224
1902	9,395,568	1,190,784	8,204,784
1903	5,198,032	741,664	4,456,368
1904	3,056,256	890,624	2,165,632
1905	5,088,608	1,020,880	4,067,728
1906	5,966,352	973,952	4,992,400
1907	6,516,048	1,268,624	5,247,424
1908	3,575,936	521,920	3,054,016
1909	5,064,864	680,736	4,384,128
1910	10,870,048	762,608	10,107,440
1911	7,380,800	1,074,976	6,305,824

Para.

R. O. AHLERS & Co, report [January 12:]

Market has been steady and without any change. The lots arriving here from Upriver have been bought and sold without much discussion.

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are unchanged:

	February 1, 1912.
Old rubber boots and shoes—domestic	9¼@ 9½
Old rubber boots and shoes—foreign	9½@ 9¼
Pneumatic bicycle tires	4½@ 4¾
Automobile tires	8¼@ 8½
Solid rubber wagon and carriage tires	9¼@ 9¾
White trimmed rubber	11 @ 11½
Heavy black rubber	4¾@ 5
Air brake hose	4½@ 4¾
Garden hose	1¼@ 1¾
Fire and large hose	2 @ 2¼
Matting	¾@ 1

COMPARATIVE RUBBER STATISTICS.

		Comparative Rates of Fine Para.		Total Exports from Para.		Total Imports into the United States.	
		Liverpool.	New York.	Para Weights.		Para Grades. Excluding Caucho.	Cent. E. I. Af. & Caucho.
1894	s. d.	to s. d.					
1894	3 0¼	to 3 1	\$0.64½	to \$0.73	18,246 tons.	9,453 tons.	5,190 tons.
1895	3 0¼	to 3 4¼	.70	to .81½	20,698 "	9,888 "	6,294 "
1896	3 0½	to 3 8¾	.71	to .85	21,530 "	9,221 "	5,112 "
1897	3 5	to 3 9	.79½	to .89	22,630 "	10,491 "	7,180 "
1898	3 7½	to 4 5	.82	to 1.06	21,890 "	9,739 "	8,881 "
1899	3 10	to 4 7¼	.91	to 1.10	25,115 "	12,498 "	10,597 "
1900	3 8½	to 4 9	.83	to 1.11½	26,727 "	11,985 "	8,483 "
1901	3 4	to 3 11½	.76	to .95	30,296 "	13,142 "	10,066 "
1902	2 10	to 3 9½	.66	to .92	28,668 "	12,901 "	8,941 "
1903	3 6¼	to 4 8	.78	to 1.13	31,079 "	13,934 "	10,826 "
1904	3 10¾	to 5 6	.89	to 1.32	29,984 "	14,367 "	13,256 "
1905	4 10¼	to 5 8¾	1.13	to 1.35	33,913 "	13,881 "	14,754 "
1906	4 11½	to 5 5½	1.16	to 1.28	35,251 "	15,128 "	14,808 "
1907	2 11¾	to 5 3	.69	to 1.24	37,321 "	15,118 "	14,315 "
1908	2 9¼	to 5 5	.65	to 1.30	38,848 "	17,316 "	12,161 "
1909	4 10	to 9 2	1.13	to 2.15	39,287 "	17,591 "	13,538 "
1910	4 10	to 12 4½	1.16	to 2.90	37,954 "	14,896 "	18,020 "
1911	3 10	to 7 1	.90	to 1.67	35,936 "	15,892 "	19,196 "

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

JANUARY 2.—By the steamer *Ucayali*, from Pará:

	Fine.	Medium.	Coars.	Capul.	Total.
Arnold & Zeiss.....	22,300	3,700	30,300	—	56,300
General Rubber Co.....	5,700	400	36,300	—	42,400
Meyer & Brown.....	5,700	400	21,800	700	28,600
H. A. Astlett.....	7,700	6,000	4,800	14,900	33,400
New York Commercial Co.....	—	3,200	9,900	4,600	17,700
F. Rosenstern Co.....	3,500	—	4,900	5,000	13,400

Total 44,900 13,700 108,000 27,200 193,800

JANUARY 4.—By the steamer *Hubert*, from Manáos and Pará:

Arnold & Zeiss.....	514,500	66,200	108,500	25,100	714,300
New York Commercial Co.....	137,100	38,300	84,700	11,900	261,000
General Rubber Co.....	112,500	16,200	46,700	11,700	187,100
Meyer & Brown.....	90,500	19,800	19,200	—	129,500
De Lagotellerie & Co.....	13,600	5,000	7,900	—	26,500

Total 868,200 145,500 267,000 48,700 1,329,400

JANUARY 12.—By the steamer *Rio de Janeiro*, from Pará:

Meyer & Brown.....	31,400	2,600	53,000	—	86,500
De Lagotellerie & Co.....	17,100	1,400	—	—	18,500
G. Amsinck & Co.....	9,600	—	6,000	—	15,600

Total 58,100 4,000 59,000 121,100

JANUARY 10.—By the steamer *Goyaz*, from Pará:

Meyer & Brown.....	41,600	—	—	—	41,600
Hagemeyer & Brunn.....	10,400	100	7,900	—	20,400
Arnold & Zeiss.....	—	—	24,400	—	24,400
Henderson & Korn.....	15,000	—	—	—	15,000
New York Commercial Co.....	—	1,100	8,600	—	9,700

Total 75,400 1,200 32,900 111,100

JANUARY 15.—By the steamer *Dominic*, from Manáos and Pará:

Arnold & Zeiss.....	300,900	38,900	170,300	20,900	531,000
New York Commercial Co.....	187,300	61,800	85,000	8,700	342,800
General Rubber Co.....	126,500	22,300	19,000	7,900	175,700
Meyer & Brown.....	79,600	4,400	15,200	22,400	121,600
L. Johnson & Co.....	—	—	—	22,400	22,400
De Lagotellerie & Co.....	—	—	13,200	—	13,200

Total 694,300 127,400 302,700 82,300 1,206,700

JANUARY 26.—By the steamer *Christopher*, from Manáos and Pará:

Arnold & Zeiss.....	509,500	49,800	315,200	14,200	888,700
New York Commercial Co.....	428,100	75,400	116,900	16,200	636,600
General Rubber Co.....	135,600	24,100	33,900	4,100	197,700
Meyer & Brown.....	64,300	13,300	62,200	—	139,800
De Lagotellerie & Co.....	13,600	5,300	13,200	—	32,100
Henderson & Korn.....	9,000	300	2,600	—	11,900

Total 1,160,100 168,200 544,000 34,500 1,906,800

PARA RUBBER VIA EUROPE.

POUNDS.

DECEMBER 26.—By the *Campana*—

Liverpool:	
N. Y. Commercial Co. (Fine)...	135,000
Arnold & Zeiss (Fine).....	50,000

DECEMBER 27.—By the *Celtic*—Liverpool:

N. Y. Commercial Co. (Fine)...	150,000
Arnold & Zeiss (Fine).....	89,000
Robinson & Co. (Fine).....	11,000
A. W. Brunn (Fine).....	10,000
Raw Products Co. (Coarse)...	45,000
Arnold & Zeiss (Coarse).....	11,500

JANUARY 2.—By the *Saxonia*—Liverpool:

Arnold & Zeiss (Fine).....	155,000
N. Y. Commercial Co. (Fine)...	55,000
Raw Products Co. (Coarse)...	13,500
Arnold & Zeiss (Coarse).....	22,500
Henderson & Korn (Coarse)...	8,000
H. A. Gould Co. (Fine).....	4,500

JANUARY 5.—By the *Lusitana*—Liverpool:

N. Y. Commercial Co. (Fine)...	56,000
Arnold & Zeiss (Fine).....	9,000
Raw Products Co. (Coarse)...	11,500

JANUARY 5.—By the *Pennsylvania*—Hamburg:

N. Y. Commercial Co. (Fine)...	25,000
Rubber Trading Co. (Fine)...	5,500
N. Y. Commercial Co. (Coarse)...	11,500

JANUARY 16.—By the *Franconia*—Liverpool:

Robinson & Co. (Fine).....	22,500
H. A. Gould Co. (Fine).....	4,500
Raw Products Co. (Coarse)...	27,000
N. Y. Commercial Co. (Coarse)...	11,000

JANUARY 19.—By the *Moltke*—Hamburg:

Meyer & Brown (Fine).....	8,000
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JANUARY 22.—By the *Carmania*—Liverpool:

N. Y. Commercial Co. (Fine)...	55,000
Arnold & Zeiss (Fine).....	45,000
A. L. Blitz (Fine).....	8,000
Robinson & Co. (Fine).....	13,500
Henderson & Korn (Fine).....	11,500
A. W. Brunn (Fine).....	5,500
In transit (Fine).....	4,500
Arnold & Zeiss (Coarse).....	4,500
Raw Products Co. (Coarse)...	3,500

JANUARY 23.—By the *Advance*—Mollendo:

W. R. Grace & Co. (Cauchó).....	5,000
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OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

POUNDS.

DECEMBER 23.—By the *President Grant*—Hamburg:

N. Y. Commercial Co.....	*20,000
Ed. Maurer.....	*6,500

DECEMBER 26.—By the *Camaguy*—Tampico:

Ed. Maurer.....	*110,000
H. Marquardt & Co.....	*40,000
New York Commercial Co.....	*34,000
Arnold & Zeiss.....	*25,000
For Europe.....	*35,000

DECEMBER 26.—By the *Celtic*—Liverpool:

General Rubber Co.....	11,500
George A. Alden & Co.....	11,000

DECEMBER 27.—By the *Occidente*—Galveston:

Continental-Mexican Rubber Co.....	*30,000
Charles T. Wilson.....	*11,500

DECEMBER 28.—By the *Prinz August Wilhelm*—Colon:

G. Amsinck & Co.....	30,000
Andean Trading Co.....	3,000
Pablo, Calvert & Co.....	1,500
Wessels, Kulenkampff & Co.....	1,500

DECEMBER 28.—By the *Mesaba*—London:

Charles T. Wilson.....	*15,000
George A. Alden Co.....	15,000

DECEMBER 28.—By the *Advance*—Colon:

Otto Gerdan & Co.....	20,000
Isaac Brandon & Bros.....	11,000
Hirzel, Feltman & Co.....	2,500
Pablo, Calvert & Co.....	2,000
W. R. Grace & Co.....	2,500
Dumarest Bros. & Co.....	1,500

DECEMBER 29.—By the *Creole*—New Orleans:

Manhattan Rubber Mfg. Co.....	6,000
A. T. Morse & Co.....	3,500
Eggers & Heinlein.....	2,500
Robinson & Co.....	2,000

DECEMBER 30.—By the *Monterey*—Vera Cruz:

E. Nelson Tibbals & Co.....	2,500
L. Johnson & Co.....	5,500
Ed. Maurer.....	1,500
H. Marquardt & Co.....	1,500
A. Lindo & Co.....	1,000

JANUARY 2.—By the *Antilla*—Tampico:

New York Commercial Co.....	*135,000
Ed. Maurer.....	*80,000
For Europe.....	*45,000

JANUARY 2.—By the *El Mundo*—Galveston:

Continental-Mexican Rubber Co.....	*125,000
Charles T. Wilson.....	*20,000

JANUARY 3.—By the *Altai*—Colombia:

Caballero & Blanco.....	1,500
J. A. Pauli & Co.....	1,000
G. Amsinck & Co.....	1,000
Heilbron, Wolff & Co.....	1,000
A. Held.....	1,000

JANUARY 3.—By the *Minneapolis*—London:

New York Commercial Co.....	35,000
Charles T. Wilson.....	11,500

JANUARY 4.—By the *Verdi*—Bahia:

Adolph Hirsch & Co.....	175,000
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JANUARY 4.—By the *Atrato*—Colombia:

Caballero & Blanco.....	2,500
Gravenhorst & Co.....	2,500
G. Amsinck & Co.....	2,500
A. M. Capen's Sons.....	2,500
J. Sambrada & Co.....	2,000
Mecke & Co.....	1,500
Roldau & Van Sickle.....	1,500
For London.....	3,000

JANUARY 5.—By the *El Cid*—New Orleans:

G. Amsinck & Co.....	5,500
T. W. Morgan.....	2,500
Eggers & Heinlein.....	3,500
Wessels, Kulenkampff & Co.....	2,000
George A. Alden & Co.....	1,500

JANUARY 5.—By the *Pennsylvania*—Hamburg:

New York Commercial Co.....	*75,000
Robert Badenhop.....	5,500

JANUARY 6.—By the *Mexico*—Frontera:

Harburger & Stack.....	2,500
E. Steiger & Co.....	2,500
General Export Comm. Co.....	2,000
E. Nelson Tibbals & Co.....	2,500
Hermann Kluge.....	2,000
Mexican Products Co.....	1,000

JANUARY 8.—By the *Santiago*—Tampico:

Continental-Mexican Rubber Co.....	*40,000
New York Commercial Co.....	*34,000
Ed. Maurer.....	*30,000
Arnold & Zeiss.....	*22,500
For Europe.....	*45,000

JANUARY 8.—By the *Terence*—Bahia:

J. H. Rossbach & Bros.....	45,000
A. D. Hitch & Co.....	15,000

JANUARY 8.—By the *Albion*—Colombia:

Maitland, Coppell & Co.....	4,500
R. del Castillo & Co.....	1,500
Iglesias, Lobo & Co.....	1,500
For London.....	2,000

JANUARY 8.—By the *El Oriente*—Galveston:

Continental-Mexican Rubber Co.....	*125,000
In transit.....	*22,500

JANUARY 9.—By the *Atlanta*—Colon:

G. Amsinck & Co.....	20,000
Piza, Nepheus Co.....	3,500
Dumarest Bros. & Co.....	2,500
Roldau & Van Sickle.....	2,000
Mecke & Co.....	1,500
Wessels, Kulenkampff & Co.....	1,000

JANUARY 10.—By the *Bluecher*—Hamburg:

New York Commercial Co.....	*50,000
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JANUARY 10.—By the *Prinz Eitel Friedrich*—Colon:

G. Amsinck & Co.....	28,000
Isaac Brandon & Bros.....	23,000
Andean Trading Co.....	2,500
Pablo, Calvert & Co.....	2,500
Meyer Hecht.....	1,500
J. Sambrada & Co.....	1,500

JANUARY 12.—By the *El Dia*—Galveston:

Continental-Mexican Rubber Co.....	*55,000
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JANUARY 12.—By the *Antilles*—New Orleans:

Manhattan Rubber Mfg. Co.....	10,000
G. Amsinck & Co.....	2,500
Eggers & Heinlein.....	1,500

JANUARY 13.—By the *Esperanza*—Frontera:

Harburger & Stack.....	5,000
E. Nelson Tibbals & Co.....	3,500
General Export Comm. Co.....	2,500
Wellard, Hawes & Co.....	1,000
Hermann Kluge.....	1,000
Mecke & Co.....	1,000

JANUARY 16.—By the *Colon*—Colon:

G. Amsinck & Co.....	13,000
Charles E. Griffin.....	3,500
E. Nelson Tibbals & Co.....	3,000
George A. Alden & Co.....	2,500
P. Eberling & Co.....	1,500
Lanman & Kemp.....	1,500
Isaac Brandon & Bros.....	1,000
Caballero & Blanco.....	1,000
J. Sambrada & Co.....	4,000

JANUARY 18.—By the *Momus*—New Orleans:

Meyer & Brown.....	5,000
T. W. Morgan.....	1,500
Eggers & Heinlein.....	1,000

JANUARY 18.—By the *Guantanamo*—Tampico:

Continental-Mexican Rubber Co.....	*77,000
New York Commercial Co.....	*34,000
Arnold & Zeiss.....	*22,000
For Europe.....	*95,000

JANUARY 18.—By the *Trent*—Colombia:

Caballero & Blanco.....	9,000
Pablo Calvert Co.....	3,000
Maitland, Coppell & Co.....	2,000
A. M. Capen's Sons.....	1,500

JANUARY 19.—By the *Moltke*—Hamburg:

New York Commercial Co.....	*13,500
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JANUARY 20.—By the *Morro Castle*—Frontera:

L. Johnson & Co.....	3,500
Diamond Rubber Co.....	2,500
Harburger & Stack.....	2,500
American Trading Co.....	1,500
Graham, Hinkley & Co.....	1,000
G. Amsinck & Co.....	1,000

By the <i>Blanca</i> —Galveston:	
Continental Mexican Rubber Co.	*65,000
By the <i>Vion</i> —Tampac:	
New York Commercial Co.	*135,000
Ed. Maurer	90,000
Continental Mexican Rubber Co.	*80,000
Ed. Maurer	*55,000
	*360,000

JANUARY 13.—By the <i>Nimrose</i> —Bahia:	
Adolph Hirsch & Co.	90,000
F. H. Rosbach & Bros.	20,000
Arnold & Zeiss	11,000
	121,000

JANUARY 23.—By the <i>Advance</i> —Colon:	
G. Amsinek & Co.	16,000
Wessels, Kulenkampff & Co.	2,000
Piza, Nephews & Co.	2,000
Dumarest Bros. & Co.	2,000
American Trading Co.	2,000
Gillespie Bros. & Co.	2,000
Suzarte & Whitney	2,000
Charles E. Griffin	1,000
Mecke & Co.	1,000
	30,000

JANUARY 23.—By the <i>Minnewaska</i> —London:	
Arnold & Zeiss	80,000
Ed. Maurer	34,000
Muller, Schall & Co.	4,500
	118,500

JANUARY 24.—By the <i>Prinz August Wilhelm</i> —Colon:	
G. Amsinek & Co.	13,500
L. Johnson & Co.	3,500
Hirzel, Feltman & Co.	2,500
Pablo, Calvert & Co.	1,500
Maldonado & Co.	1,000
	22,000

AFRICAN. POUNDS.

DECEMBER 23.—By the <i>President Grant</i> —Hamburg:	
George A. Alden & Co.	65,000
Henderson & Korn	34,000
Meyer & Brown	30,000
W. L. Gough Co.	25,000
R. Badenhop	15,000
Ed. Maurer	11,000
Rubber Trading Co.	11,500
L. Blitz	5,000
	196,500

DECEMBER 26.—By the <i>Campania</i> —Liverpool:	
George A. Alden & Co.	22,500
Ed. Maurer	9,000
L. Blitz	7,000
	38,500

DECEMBER 26.—By the <i>Celtic</i> —Liverpool:	
Robinson & Co.	22,500
General Rubber Co.	11,500
George A. Alden & Co.	7,000
W. L. Gough Co.	5,500
J. T. Johnstone	5,500
Rubber Trading Co.	4,500
Ed. Maurer	5,500
	62,000

DECEMBER 28.—By the <i>Mesaba</i> —London:	
Robinson & Co.	45,000
Henderson & Korn	7,000
	52,000

DECEMBER 28.—By the <i>Finland</i> —Antwerp:	
Meyer & Brown	34,000
W. L. Gough Co.	20,000
General Rubber Co.	7,000
Henderson & Korn	7,000
	68,000

DECEMBER 29.—By the <i>St. Laurent</i> —Bordeaux:	
Arnold & Zeiss	11,500
George A. Alden & Co.	2,500
	14,000

JANUARY 2.—By the <i>Saxonia</i> —Liverpool:	
Arnold & Zeiss	35,000
General Rubber Co.	38,000
Ed. Maurer	7,000
George A. Alden & Co.	4,500
	84,500

JANUARY 2.—By the <i>Agnella Ciampa</i> —Lisbon:	
Arnold & Zeiss	45,000
General Rubber Co.	22,500
W. L. Gough Co.	11,000
	78,500

JANUARY 3.—By the <i>Minneapolis</i> —London:	
George A. Alden & Co.	141,000
W. L. Gough Co.	11,500
Rubber Trading Co.	7,000
	159,500

JANUARY 3.—By the <i>Vaderland</i> —Antwerp:	
Meyer & Brown	135,000
General Rubber Co.	89,000
Arnold & Zeiss	56,000
W. L. Gough Co.	25,000
Rubber Trading Co.	13,500
Henderson & Korn	7,000
In transit	35,000
	360,500

JANUARY 4.—By the <i>Cynric</i> —Liverpool:	
Arnold & Zeiss	45,000
Ed. Maurer	13,500
W. L. Gough Co.	15,000
	73,500

JANUARY 5.—By the <i>Pennsylvania</i> —Hamburg:	
George A. Alden & Co.	90,000
Meyer & Brown	45,000
Ed. Maurer	27,000
Robert Badenhop	25,000

W. L. Gough Co.	34,000
Rubber Trading Co.	20,000
Raw Products Co.	3,000
	244,000

JANUARY 5.—By the <i>Lusitania</i> —Liverpool:	
Ed. Maurer	11,000
Arnold & Zeiss	17,500
	28,500

JANUARY 8.—By the <i>Minnetonka</i> —London:	
George A. Alden & Co.	17,000
Ed. Maurer	15,000
Arnold & Zeiss	11,500
Robinson & Co.	7,500
J. T. Johnstone	7,000
	58,000

JANUARY 9.—By the <i>Zeeland</i> —Antwerp:	
Meyer & Brown	25,000
Muller, Schall & Co.	2,000
	27,000

JANUARY 10.—By the <i>Bluecher</i> —Hamburg:	
Ed. Maurer	25,000
Arnold & Zeiss	22,500
George A. Alden & Co.	11,500
General Rubber Co.	9,000
R. Badenhop	5,000
Raw Products Co.	3,500
	76,500

JANUARY 12.—By the <i>Florida</i> —Havre:	
General Rubber Co.	125,000
Ed. Maurer	30,000
Arnold & Zeiss	13,500
De Lagotellerie & Co.	7,000
George A. Alden & Co.	5,500
	181,000

JANUARY 15.—By the <i>Cervic</i> —Liverpool:	
Arnold & Zeiss	45,000
George A. Alden & Co.	11,000
Ed. Maurer	9,000
L. Blitz	5,000
J. T. Johnstone	5,000
	75,500

JANUARY 15.—By the <i>St. Louis</i> —London:	
George A. Alden & Co.	8,000
General Rubber Co.	8,000
	16,000

JANUARY 15.—By the <i>Minnehaha</i> —London:	
Charles L. Wilson	15,000
Raw Products Co.	4,500
	19,500

JANUARY 16.—By the <i>Franconia</i> —Liverpool:	
Ed. Maurer	30,000
J. T. Johnstone	34,000
General Rubber Co.	22,500
George A. Alden & Co.	11,500
Arnold & Zeiss	2,000
	100,000

JANUARY 17.—By the <i>Lapland</i> —Antwerp:	
Meyer & Brown	7,000
L. Blitz	8,000
W. H. Stiles	4,500
	19,500

JANUARY 19.—By the <i>Moltke</i> —Hamburg:	
George A. Alden & Co.	130,000
General Rubber Company	11,000
Ed. Maurer	9,000
Robert Badenhop	4,500
	154,500

JANUARY 20.—By the <i>Storford</i> —Lisbon:	
Arnold & Zeiss	45,000
George A. Alden & Co.	11,500
W. L. Gough Co.	11,500
	68,000

JANUARY 22.—By the <i>Carmania</i> —Liverpool:	
Ed. Maurer	34,000
Arnold & Zeiss	33,000
Robinson & Co.	40,000
General Rubber Co.	13,500
Raw Products Co.	3,500
	124,000

JANUARY 23.—By the <i>Minnewaska</i> —London:	
W. L. Gough Co.	8,000
George A. Alden & Co.	4,500
C. L. Wilson Co.	4,500
	17,000

EAST INDIAN. POUNDS.

DECEMBER 23.—By the <i>President Grant</i> —Hamburg:	
Ed. Maurer	*70,000

DECEMBER 26.—By the <i>Campania</i> —Liverpool:	
Ed. Maurer	*33,500
William H. Stiles	*11,500
	*45,000

DECEMBER 26.—By the <i>St. Patrick</i> —Singapore:	
Ed. Maurer	*22,500
New York Commercial Co.	*6,000
A. W. Brunn	*4,500
	*33,000

DECEMBER 28.—By the <i>Mesaba</i> —London:	
Arnold & Zeiss	*40,000
Wallace L. Gough Co.	*7,000
General Rubber Co.	*9,000
A. T. Morse & Co.	*4,500
New York Commercial Co.	*3,000
	*63,500

DECEMBER 28.—By the <i>Finland</i> —Antwerp:	
A. T. Morse & Co.	*27,000

JANUARY 2.—By the <i>Saxonia</i> —Liverpool:	
Ed. Maurer	*48,000
New York Commercial Co.	*7,000
Meyer & Brown	*3,500
	*58,500

JANUARY 3.—By the <i>Vaderland</i> —Antwerp:	
Rubber Trading Co.	*25,000
General Rubber Co.	*14,000
Meyer & Brown	*13,500
Henderson & Korn	*4,500
	*57,000

JANUARY 3.—By the <i>Minneapolis</i> —London:	
New York Commercial Co.	*95,000
Arnold & Zeiss	*67,000
James T. Johnstone	*15,000
Henderson & Korn	*11,500
Ed. Maurer	*10,000
Meyer & Brown	*5,500
In transit	*30,000
Arnold & Zeiss	25,000
Robinson & Co.	22,500
	*281,500

JANUARY 4.—By the <i>Matoppe</i> —Colombo:	
Meyer & Brown	*100,000
New York Commercial Co.	*15,000
Arnold & Zeiss	*7,000
	*122,000

JANUARY 4.—By the <i>New York</i> —London:	
Henderson & Korn	*18,000
Ed. Maurer	*5,000
Meyer & Brown	*11,000
	*34,000

JANUARY 5.—By the <i>Lusitania</i> —Liverpool:	
Meyer & Brown	*11,000

JANUARY 5.—By the <i>Pennsylvania</i> —Hamburg:	
Meyer & Brown	*4,500
Robert Badenhop	*5,000
Rubber Trading Co.	*7,000
	*16,500

JANUARY 8.—By the <i>Minnetonka</i> —London:	
New York Commercial Co.	*35,000
Arnold & Zeiss	*30,000
Ed. Maurer	*10,000
	*75,000

JANUARY 10.—By the <i>Bluecher</i> —Hamburg:	
Ed. Maurer	*15,500

JANUARY 11.—By the <i>Oceanic</i> —London:	
Henderson & Korn	*40,000
New York Commercial Co.	*30,000
Arnold & Zeiss	*11,000
Ed. Maurer	*9,000
In transit	*15,000
	*105,000

JANUARY 15.—By the <i>St. Louis</i> —London:	
Arnold & Zeiss	*15,000
New York Commercial Co.	*9,000
L. Blitz	*5,000
	*29,000

JANUARY 15.—By the <i>Minnehaha</i> —London:	
General Rubber Co.	*225,000
Ed. Maurer	*20,000
W. L. Gough Co.	*11,500
Henderson & Korn	*11,500
Meyer & Brown	*8,000
Arnold & Zeiss	*7,000
Robinson & Co.	*1,500
	*284,500

JANUARY 18.—By the <i>Olympic</i> —London:	
Arnold & Zeiss	*15,000
New York Commercial Co.	*10,000
W. H. Stiles	*4,500
Rubber Trading Co.	*3,500
In transit	*80,000
	*113,000

JANUARY 18.—By the <i>Karema</i> —Colombo:	
New York Commercial Co.	*30,000

JANUARY 20.—By the <i>Erroll</i> —Singapore:	
Malaysian Rubber Co.	*25,000

JANUARY 22.—By the <i>Carmania</i> —Liverpool:	
Ed. Maurer	*30,000
Henderson & Korn	*7,000
	*37,000

JANUARY 24.—By the <i>Seneca</i> —Singapore:	
W. L. Gough Co.	*20,000
Haebler & Co.	22,500
L. Littlejohn & Co.	15,500
Arnold & Zeiss	11,000
Ed. Maurer	11,000
	80,000

JANUARY 23.—By the <i>Minnewaska</i> —London:	
Arnold & Zeiss	*60,000
New York Commercial Co.	*50,000
Ed. Maurer	*40,000
Meyer & Brown	*22,500
J. T. Johnstone	*15,500
Robinson & Co.	*4,500
In transit	*50,000
Robinson & Co.	11,000
	253,500

GUTTA-JELUTONG. POUNDS.

DECEMBER 23.—By the <i>President Grant</i> —Hamburg:	
George A. Alden & Co.	45,000

DECEMBER 26.—By the <i>St. Patrick</i> —Singapore:	
L. Littlejohn & Co.	380,000
Haebler & Co.	180,000
George A. Alden & Co.	65,000
W. L. Gough & Co.	55,000
A. W. Brunn	20,000
	700,000

DECEMBER 30.—By the <i>Amsteldyk</i> —Rotterdam:	
L. Littlejohn & Co.	125,000

DECEMBER 20.—By the *Belgravia*=Hamburg:
George A. Alden & Co. (Central)..... *45,000

DECEMBER 26.—By the *Winifredian*=Liverpool:
George A. Alden & Co. (African)..... 13,000

DECEMBER 21.—By the *St. Patrick*=Singapore:
State Rubber Co. (Jelutong)..... 125,000
L. Littlejohn & Co. (Jelutong)..... 450,000
Haebler & Co. (Gutta-Percha)... 67,000 642,000

<i>Imports:</i>	Pounds.	Value.
India-rubber	8,833,477	\$7,200,378
Balata	74,768	50,807
Guayule	639,195	227,551
Gutta-percha	129,857	26,662
Gutta-jelutong (Pontianak) ..	4,849,196	221,420
Total	14,526,493	\$7,726,818

JANUARY 3. By the *Minneapolis*=London:
Ed. Maurer 11,500

EXPORTERS.		NEW YORK.					EUROPE.					TOTAL.
		Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	
Gruner & Co.—Pará.....	}											
Dusendschon, Zarges & Co.—Manaos.....		3,505,469	832,495	2,528,803	692,007	7,558,774	4,320,866	429,546	605,782	1,741,060	7,097,254	14,656,028
Ad. H. Alden, Ltd., Pará-Manaos.		1,577,916	359,975	926,438	516,014	3,380,343	1,319,086	372,272	489,099	393,818	2,574,275	5,954,618
Gordon & Co., Pará-Manaos.....		1,108,322	184,067	585,291	52,319	1,929,999	1,273,869	269,265	345,130	534,123	2,422,387	4,352,386
Scholz Hartje & Co., Pará.....		327,062	52,971	160,119	183,064	723,216	623,762	103,540	181,823	408,400	1,317,525	2,040,741
Scholz & Co., Manaos.....	}											
Suarez Hermanos & Co., Ltd.....												
E. Pinto Alves & Co., Pará.....		201,646	10,076	420,707	40,197	672,626	302,813	36,569	59,688	62,373	461,443	1,134,069
J. Marques, Para Manaos.....		141,360	47,198	59,159	7,068	254,785	512,177	103,563	102,633	18,472	736,845	991,630
De Lagotellerie & Co., Pará-Manaos		274,494	43,894	220,051		538,439	164,911	12,225	24,657	84,307	286,100	824,339
R. O. Ahlers & Co., Pará.....	}	85,226		25,128	138,431	248,785	280,083	3,348	52,125	82,191	417,747	666,532
Ahlers Co., Manaos.....												
Pires Teixeira & Co., Pará.....		141,950	4,540	97,020	330	243,890	170,971	315	69,795	154	241,235	485,125
Nunes Sobrinho & Co., Pará.....		107,610	5,610	40,920		154,140	42,840	1,020	3,630		47,490	201,630
Mello & Co., Pará-Manaos.....				10,162	1,125	11,287	95,310	24,497	7,953	29,187	156,947	168,234
The Alves Braga Rubber Estates					97,082						97,082	
& Trading Co., Ltd.....	75,738	8,376	12,335	733								
A. de la Riviere Co., Pará.....	7,140	510	3,960		11,610	39,209	3,152	28,524	2,016	72,901	84,511	
J. G. Araujo & Co., Manaos.....				1,830	1,830	40,083	8,213	41,978	1,066	91,340	93,170	
E. Kingdom & Co., Manaos.....						21,600		8,560	3,920	34,080	34,080	
Guillierme Aug. de Miranda filho, Pará.....	15,390	2,228	624		18,242	5,086	690	2,090	129	7,995	26,237	
S. A. Armazens Andrese, Manaos						13,858	2,492	8,923	903	26,176	26,176	
Günzburger Levy & Co., Manaos..	288	190	884	3,645	4,707	2,504	208	322		3,034	7,741	
Braga Sobrinho & Co., Pará.....						4,305	437	296		5,038	5,038	
Sundries.....	19,597	5,860	48,311	657	74,425	160,785	16,886	69,132	83,097	329,900	404,325	
From Itacoatira direct.....						51,120	7,243	36,522	2,515	97,400	97,400	
From Iquitos direct.....	97,472	13,335	33,718	32,176	176,701	878,366	87,874	264,625	782,144	2,013,009	2,189,710	
Total, 1911.....	7,686,680	1,571,375	5,173,230	1,669,596	16,100,881	11,230,371	1,503,869	2,504,439	4,519,039	19,757,718	35,858,599	
Total, 1910.....	7,500,410	1,412,311	4,489,108	1,658,661	15,060,490	11,637,302	1,506,752	3,382,432	6,416,842	22,979,328		

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FEBRUARY 1, 1912.

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CHANGES IN PARA AND MANAOS FIRMS.

UNDER date of December 31, 1911, Messrs. Gruner & Co., of Pará, and Messrs. Dusendschön, Zarges & Co., of Manáos, announced by joint circular the extinction of those firms, in consequence of the expiry on the date named of partnership contract.

By annexed circular of January 2, 1912, the formation is announced of two new firms, Messrs. Zarges, Berringer & Co., Pará; and Messrs. Zarges, Ohliger & Co., Manáos, who will continue the business of the above-named firms, whose assets and liabilities they assume. Messrs. Heilbut, Symons & Co., of London and Liverpool, become special partners in both firms. The management of the Manáos house is in the hands of Mr. Emil Albert Zarges and Mr. Hugo Ohliger, while that of the Pará house devolves upon Mr. Franz Christian Adolf Berringer, these three gentlemen being the general partners in the new firms.

Antwerp.

RUBBER STATISTICS FOR DECEMBER.

DETAILS.	1911.	1910.	1909.	1908.	1907.
Stocks, Nov. 30, kilos	634,262	568,148	735,616	604,170	1,015,282
Arrivals in December	451,314	300,703	315,997	520,182	219,544
Congo sorts	321,169	234,673	15,983	454,701	190,000
Other sorts	130,145	66,030	100,014	65,481	29,544
Aggregating	1,085,576	868,851	1,051,613	1,124,352	1,234,826
Sales in December	410,838	280,639	510,101	528,617	227,932
Stocks, December 31.	674,738	588,141	541,512	595,735	1,006,894
Arrivals since Jan. 1.	4,335,813	4,058,676	4,685,958	5,035,344	5,054,473
Congo sorts	3,175,581	3,105,357	3,492,332	4,262,531	4,346,141
Other sorts	1,160,232	953,319	1,193,626	772,813	708,332
Sales since Jan. 1.	4,249,387	4,011,974	4,740,181	5,446,503	4,705,763

RUBBER ARRIVALS FROM THE CONGO.

DECEMBER 7.—By the steamer *Elizabethville*:

Bunge & Co.	(Société Generale Africaine)	kilos	65,700
do	(Comptoir Commercial Congolais)		4,400
do	(Chemins de fer Grands Lacs)		2,400
do	(Cie. du Kasai)		57,500
Société Coloniale Anversoise	(Belge du Haut Congo)		260
do	(Cie. du Lomami)		3,400
L. & W. Van de Velde	(Société Comm. and Financ. Africaine)		1,300
do			4,000
			138,960

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to December 18, 1909 and 1910. Compiled by the Ceylon Chamber of Commerce.]

	1910.	1911.
To Great Britain	1,495,071	3,374,226
To United States	1,480,693	1,807,085
To Belgium	66,114	729,174
To Australia	5,030	47,547
To Japan	3,246	56,000
To Germany	14,203	48,254
To Canada	7,476	18,871
To Holland		12,893
To Italy	1,909	8,460
To Austria	1,041	6,648
To India		3,216
To Straits Settlements		196
To France		117
To Africa		35
Total	3,074,783	6,112,722

[Same period 1909, 1,332,055 pounds; same 1908, 790,815.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

FROM—	1909.	1910.	1911.
Singapore (to Nov. 30)	2,348,271	3,512,787	6,009,206
Penang (to Nov. 26)	1,976,843	2,234,569	4,547,062
Port Swettenham (to Sept. 30)		5,946,053	8,525,001
Total	4,325,114	11,693,409	19,081,269

Rubber Receipts at Manaos.

	November.
FROM—	1911.
Rio Purus-Acre	581
Rio Madeira	470
Rio Juruá	249
Rio Tavaiz-Iquitos	433
Rio Solimões	167
Rio Negro	17
Total	1,917
Caucho	170
Total	2,087
For Shipment from	
Manáos	1,733
Pará	354
Total	2,087

Liverpool.

WILLIAM WRIGHT & Co. report [January 5]:

Fine Pará.—The demand on the whole has been good, especially during the last six months, deliveries to the trade (Europe and America) during that period showing the large increase of 6,141 tons. During the first six months of 1911 heavy fluctuations took place owing to speculative holdings; these having been cleared, prices have settled down to a reasonable level, and the year closes with the prospect of a good demand and moderate fluctuations.

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necessarily in rubber manufacture. Ask
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Edited by HENRY C. PEARSON—Offices, No. 15 West 38th Street, NEW YORK.

Vol. XLV. No. 6.

MARCH 1, 1912.

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 The Merchants Rubber Co., Limited, Berlin, Ont.
 The Berlin Rubber Manufacturing Co., Limited, Berlin, Ont.
 The Maple Leaf Rubber Co., Limited, Port Dalhousie, Ont.
 Dominion Rubber Co., Limited, St. Jerome, P. Q.

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THE FUTURE OF RUBBER IN THE WEST INDIES.

THE Eighth Annual Agricultural Conference of the West Indies, held in Trinidad during the last week of January, was interesting from any standpoint, but particularly because of the evidence that rubber culture is at last receiving serious consideration. The possibilities of rubber planting in those islands were so clearly set forth in an address delivered at that congress by Mr. Henry C. Pearson, editor of THE INDIA RUBBER WORLD, that it seems not improper to reproduce it here. He was elected an honorary member of the conference, and he spoke as follows:

Logically rubber planting should have had its beginnings, growth and success in the vast fertile reaches that border the Amazon river. Brazil, however, did not embrace its opportunity and it passed. This rubber mantle (or shall we say mackintosh?) then fell upon Dutch and British Guiana, Trinidad, Dominica and Honduras. Little was done and their opportunity passed. In the Middle East, however, remarkable success was attained.

Some one has said that "Opportunity knocks once and

only once at a man's door." I have forgotten who said it and should be glad to forget the saying, for it is grotesquely untrue. Particularly do I believe it to be false as regards the planting of *Hevea* rubber in this part of the world.

The West Indian would-be rubber planter fears that he cannot compete with the planter in Ceylon and the Malay States. That, however, is not his problem and will not be for years to come. The question is, can he compete with wild Pará rubber from the Amazon?

To be sure the future success or failure depends upon the law of supply and demand; or—as a better arrangement—of demand and supply. As to the former the manufacturers of the world demanded last year some two hundred million pounds of rubber and allied gums. The question is, will they continue to need as much, or more? Without claiming to be a prophet I believe that twice that amount will ere long be needed. Every industry, profession, and art uses rubber in constantly increasing quantities. As the United States consumes something like half of the world's supply, and as it is a country you must frequently pass on your way to Canada, you will pardon me for modestly alluding to it. Our most spectacular rubber-using industry there today is the manufacture of motor tires. We are adding to motor cars already in commission something like 200,000 a year, which means for initial equipment one million tires, counting one spare, and one million inner tubes. With the replacements and equipment for cars already running, there is a conservative estimate of close to four million tires.

The pleasure car, however, is not destined to be always the leader in motordom. The commercial motor truck will eventually far outclass it in number and in rubber consumption. Horse-drawn trucks have been proved so much more expensive and so inefficient as compared with the gasoline truck, that it is only a question of a few years when the former will disappear. This, with the increasing demand for rubber in engineering, clothing, footwear, druggists' and surgeons' sundries, electricity, aviation, and many other lines makes up a vast total.

Now as to the supply. It goes without saying that the bulk of the world's product will eventually come from plantations. Wicherley, in his recent excellent brochure, warns the British rubber planters against an "awakened Brazil." I am very fond of Brazil and the Brazilians. My journeys to the rubber centers of the Amazon were wonderfully informing and uniformly enjoyable. The Brazilians are awake, but they are tied hand and foot. For the actual needs of the government they are obliged to collect a 23 per cent. ad valorem export tax on every pound of rubber that goes out of the country. Labor is scarce and costly. Provisions, clothing, implements cost many times what they do here in the West Indies. Freight is excessive, and the leaders in commercial activity—English, Germans, Americans, Portuguese—are down there for a time only to make money and then to return to their respective homes. There is not capital in Brazil available for rubber planting and outside capital does not care to be taxed, as it would if it embarked in rubber ventures there. Wild rubber from up the Amazon costs anywhere from 2s. or 50 cents to 5s. or \$1.25 per pound to produce.

Certainly planters here can produce rubber as cheaply as they can up the Amazon. It is a far cry to the time when *Hevea* plantations in the West Indies will find serious competition from planted rubber in the Middle East. I say this with the hope that there will be no disaster there; but the great areas of planted *Hevea* in the

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NEW YORK
BOTANICAL
GARDEN

Middle East are not immortal; they are not even immune; and the wage of laborers, even of Coolies, might advance. You have here in the West Indies, soil, climate and rainfall, excellently adapted for rubber planting. You have the most expert of agricultural advisers. What then is lacking?

PROGRESS OF THE NEW YORK EXPOSITION.

TWO interesting articles bearing on the New York Rubber Exposition will be found elsewhere in this issue. One is the very readable paper contributed by Sir Henry A. Blake, president of the two rubber expositions held in London, on "Rubber Expositions as a Trade Stimulus," in which he shows the energizing effect on the whole industry of these trade exhibitions and conferences of rubber men. The other article is an account of the marked progress made by the organizer of the New York exposition, Mr. A. Staines Manders, in arousing the interest of all classes of rubber men on the other side of the water in this first American rubber show. Mr. Manders was the organizer of the two London rubber exhibitions, held in 1908 and 1911, and in giving a forecast of the exposition, to be held in the Grand Central Palace next fall, he speaks not at a venture, but from a full experience. He believes the New York enterprise will surpass in distinction and popular success both of its London predecessors.

Announcement is also made in this issue of the offer of substantial prizes—the first prize being \$5,000, the second \$1,500, and the third \$1,000—by the London 1914 Rubber Exhibition to inventors who can suggest the best method of rendering rubber non-slipping for outside use on pavements, roadways and wherever rubber is exposed to heavy traffic. The conditions under which these prizes are offered will be made public during the New York Exposition.

LOWER PRICES FOR RUBBER SHOES.

THE rubber footwear companies did the expected, when, on February 1, they reduced their prices. To be sure, the reduction was not as great as the distributing trade—especially the retailer—had hoped; but it went as far as those familiar with all the conditions had anticipated. Boots, lumbermen's and arctics, were reduced in price about 9 per cent., san-

dals, croquets, and "storms" remaining the same. In other words, heavy goods, which are large consumers of rubber, have dropped with the dropping of crude rubber prices; and light goods, where the cost of rubber does not play so important a part, but where the great multiplicity of styles, shapes and sizes, necessitating innumerable lasts, enters largely into the cost, have stayed where they were. The farmer, fisherman, lumberman and miner are the beneficiaries; the town dweller, whose rubber wants, as a rule, do not extend much beyond a pair of light "overs," continues to pay the same.

As the gross value of the annual footwear product of American rubber factories is not far from \$80,000,000, and as the heavy lines constitute two-thirds of this total value, the 9 per cent. reduction will amount approximately to \$5,000,000; but, with rubber selling at \$1.10 and lower, as against \$1.45, which was about the average price of the crude rubber that went into the 1911 product, there should be a better margin of profit now than a year ago.

If the manufacturers could have been assured that rubber prices would not again transgress the \$1.10 mark, they might have scaled prices down a little more; but that is an assurance no one is in a position to vouchsafe. At present, there seems no reason why crude rubber should show any disposition to climb much above its present price; but who suspected, when Fine Pará was selling at 65c. in February, 1908, that 26 months later it would sell at three dollars?

THE CONSULTING ENGINEER.

A GREAT deal has been heard of late about the "efficiency promoter," the expert who goes into the office of a large corporation, examines the system and the staff, in theory, at least, detects the weak spots and strengthens them, discovers the leakages and stops them, and puts the entire institution on a basis of the greatest efficiency. Some of this "efficiency" work is undoubtedly successful, but much of it is doomed to at least partial failure, because of the impossibility of devising a gage that shall serve adequately and accurately to measure human capacity. No two men are exactly alike or do their work in precisely the same way. The man whose office is the quietest, whose desk is the cleanest and who appears to spend much of his time looking out of the window, may be the man whose mind is driving the entire organiza-

tion; while his next-door neighbor who makes the corridor ring all day long with the echo of his voice and who shakes the building when he walks, may not accomplish a decent day's work in the whole year. It is the personal equation that makes it difficult, if not impossible, for a stranger, however expert in general office economics, to go into an organization and pick out the useful members and weed out the useless.

But in the realm of mechanics the situation is quite different. The efficiency of machines is susceptible of accurate measurement, and in the factory the efficiency expert, more generally known as the consulting engineer, has a proper and useful field for his operations.

The superintendent of a rubber mill in most cases is a man who has arrived at his position through long years of experience in that or in a similar mill. He is a practical man. To that fact his usefulness and fitness for his position are attributable. He knows how to run the mill because he is familiar with every phase of the mill's operation. The mechanical management—that is, the supervision of the machinery of the mill—he usually delegates to a master mechanic, as a rule a practical man who has acquired most of his education in the same way—by years of personal familiarity with those machines.

It is quite possible that these men may be managing the mill better than any other men could—so well perhaps that no outside man could possibly come in and take their place; and yet, an outside man might be able to show them how their efficiency could be materially increased. Both superintendent and master mechanic are likely in a large enterprise to be extremely busy men; they have little time to go out into the world of mechanics in search of the new. They are likely too (it is a human trait) to get more and more confirmed in their own ways—which ways may be good, but not the best. Possibly, once they were the best; but times have changed, and decided improvements may have appeared.

The consulting engineer may not have a quarter of the practical knowledge of the men who are managing the mill, but he has a different sort of knowledge, a wider knowledge. It is his province to traverse the whole field and keep in touch with the latest developments. He is in a position to make a continual comparison of the efficiency of different methods and different devices. He ought to be able to tell, after a careful inspection, if the mechanical equipment of a mill is susceptible of improvement; and if so, how to improve it, where to go for the better equipment, what it will cost, and how much it will save. Therein lies the advantage to the factory superintendent of calling in from time to time the consulting en-

gineer to go over the plant and carefully inspect its machinery.

It is always easy for a manufacturing concern, especially one long established with a reputation gained many years ago, to get into a rut. The consulting engineer, if he is properly equipped for his duties, will get the manufacturer out of his rut. The superintendent and chief machinist who have been in their positions for a long time, may be following traditions much too closely and there may be new conditions that are a vast improvement over these traditions.

It goes without saying that the consulting engineer's usefulness depends quite as much on his scrupulous integrity as on his knowledge, for here is obviously a case where he cannot serve two masters.

PROPOSED CHANGES IN THE CHEMICAL SCHEDULE.

AMERICAN manufacturers are doubly interested as to proposed tariff changes; both as buyers of crude and semi-manufactured materials and as sellers of manufactured products.

The rubber industry will be much interested by the proposed alterations in the chemical schedule, the principal items of which affecting rubber manufacturers are dealt with in another column. The changes are in many cases downward, while in a few instances they represent an advance on present rates.

American manufacturers are importers of crude and semi-manufactured materials to a greater extent than is generally recognized. Out of imports in 1911 aggregating \$1,533,067,130 crude material amounted to \$503,901,466 and semi-manufactured material to \$287,747,637 making a total exceeding 50 per cent. of the aggregate imports. While about two thirds of the materials imported are free of duty, the dutiable portion is sufficiently large to claim the attention and earnest consideration of manufacturers in general, and particularly of the rubber industry.

WHAT BRAZIL WILL DO FOR RUBBER.

OWING to the passage by the Brazilian National Congress, before closing its labors, of the project adopted by the Rubber Congress held at Rio de Janeiro in August last, the new law was approved by

the president on January 5. Its provisions (as summarized in another column) include the free entry of many articles incidental to the production of rubber; a wide field being thus afforded makers in that branch in meeting anticipated demands. While the authority is given the executive to make agreements with three State governments as to the graduated reduction or eventual abolition of the export tax on rubber, a good deal depends on the action of the separate States interested.

In any case, an honest effort seems to have been made for the benefit of the Brazilian rubber industry, and it is to be hoped that the administration of the law will be such as to promote that end. The delegates whose united wisdom evolved the project, will doubtless, each in his own sphere, see that it is fully and impartially carried out.

INCREASED GERMAN DUTIES ON AMERICAN RUBBER SHOES.

OWING to the tariff agreement between Germany and Sweden, of May 8, 1906, having expired on December 1, 1911, the concession upon Swedish rubber shoes, by which the United States likewise profited, ceased on the same date. Since then both Swedish and American rubber shoes have paid the full rate equalling about \$11 per 100 pounds, in place of the lower conventional duty of \$8.80 per 100 pounds.

The United States tariff agreement with Germany, while precluding discrimination against American goods, does not provide for any privileges which are not shared by one or more other nations.

According to official statistics, the German imports of American rubber shoes since 1905 have been as follows: 1905, \$124,250; 1906, \$392,500; 1907, \$25,250; 1908, \$177,750; 1909, \$133,750; 1910, \$144,000. Owing to the recent action of the German government not having been foreseen, German importers were unable to make prospective arrangements to avoid its effects.

WIRELESS VS. CABLE TELEGRAPHY.

WITH the advent of wireless telegraphy, a new and potent influence has been brought to bear upon modern progress; considerably expanding the facilities of communication afforded by cable tele-

graphy, although necessitating far more electricity for its operation.

That there is ample room for both systems in their respective fields is shown by a German opinion quoted in another column. Wireless telegraphy can be made as serviceable to the rubber producer as the telephone has become to the American farmer, particularly in such cases as those parts of Brazil where telegraphic communication between points important of themselves, does not pass through intervening traffic-producing centers. Thus Porto Velho uses wireless to communicate with Marãos and thence is in touch through cable with the outside world.

It has been remarked that "the little town, 2,000 miles deep in the Amazon jungle, has been in this respect more up-to-date than any city in the United States or Europe." Whether such a statement is fully justified would be a point of discussion, but in any case the combined working recorded of the wireless and ordinary systems, is of practical interest as demonstrating the scope of Brazilian enterprise in this new field of telegraphy.

WORKING FOR ONE CENT LETTER POSTAGE.

REPRESENTATIVE JOHN W. WEEKS, who delivered the interesting address on American monetary problems at the last dinner of The Rubber Club of America, has introduced into the House of Representatives a bill (which was introduced in the Senate by Senator Burton of Ohio), for one cent letter postage. One paragraph of this bill gives a strong argument for its passage. The paragraph is as follows: "During most of this time (the twenty-nine and a half years since the last reduction on letter postage was voted by Congress, October 1, 1883) the first class mail has produced a revenue vastly in excess of the costs of its service, as an instance of which the revenue for the latest fiscal year ending June 30, 1911, has been over \$162,000,000, of which amount \$62,000,000 is estimated profit to the department, thus indicating that a considerably lower rate, which would enormously stimulate the growth of this class of mail with a resultant further increase of revenue therefrom, would probably amply compensate the government, particularly bearing in mind that no reduction is contemplated in postage on postal cards."

This bill is the result of the activity of the National One Cent Letter Postage Association, whose president, Charles William Burrows, of Cleveland, was also present with Congressman Weeks at the Rubber Club dinner and delivered on that occasion a notable address on the postal problems of this country.

The West Indian Agricultural Conference.

THE most notable agricultural conference in the history of the West Indies was held in Port of Spain, Trinidad, during the week ending January 30. It was notable not only because of the large attendance—some hundred delegates being present from the other West Indian Islands and British Guiana—but because of the marked interest of those who attended and the importance of the subjects discussed.

The president of the conference was Dr. Francis Watts, Imperial Commissioner of Agriculture for the West Indies; and the Governor of the Island opened and closed the conference and attended many of its sessions.

While the conference considered sugar, cotton, cocoa and other kindred topics, it was of special importance to those interested in rubber, because of the amount of time allotted to the discussion of this subject, and because of the practical character of the papers read and the addresses made during the rubber ses-

The paper read by Mr. Evans gave a great deal of information of practical value to West Indian rubber planters regarding conditions in the Malay States, showing the cost of bringing an acre of rubber trees into bearing, the cost per pound of the rubber when placed on the market, describing the method of planting the trees, the proper age for tapping, the tapping tools and tapping system which experience has found most advantageous, and giving much other information regarding rubber culture in the East.

The Messrs. Jones contributed a paper of much importance to people interested in the planting of *Castilloa*, the first specimens of which were introduced into Dominica in 1891. The four original trees planted at that time in the botanic gardens are still in a healthy state of growth and constitute the source of all the present cultivation of *Castilloa* in the different islands. They gave a detailed enumeration of the varieties of this rubber tree,



DELEGATES TO THE AGRICULTURAL CONFERENCE, TRINIDAD, JANUARY, 1912, ON THE STEPS OF THE PRINCE'S BUILDING.

sion. That part of the president's address which was devoted to the subject of rubber is given below. In addition to this interesting contribution an important paper on Pará rubber cultivation in the East was read by Frank Evans, assistant superintendent and curator of the Royal Botanic Gardens, Trinidad, and another valuable paper on the cultivation of *Castilloa* in Dominica was contributed by Joseph Jones and G. A. Jones. Henry C. Pearson, editor of THE INDIA RUBBER WORLD, who was elected an honorary member of the conference, delivered an address on the future of rubber growing in the West Indies, which will be found in the editorial columns of this issue.

described the methods of tapping and gave the results of tapping experiments on trees of various ages. In the opinion of these two experts, the *Hevea Brasiliensis* still remains, after years of experiments with other rubber trees, the only tree that has given general satisfaction under cultivation.

A notable addition to the rubber programme were the lectures by Dr. P. J. S. Cramer, of Dutch Guiana, and Mr. Alleyne Leechman, of British Guiana. The former had just returned from the Middle East and presented some wonderful views of interesting rubber developments in Ceylon, Malay States and Java. Mr. Leechman's views were devoted to *Hevea* and *Sapium* planta-

tions in British Guiana. They showed the work done at the various experiment stations and also the methods of extracting and coagulating balata.

A very interesting and informing feature of the Conference was the rubber demonstration at the St. Clair Experiment Station, which is close to the city. The delegates were shown how



RESIDENCE OF TRINIDAD'S GOVERNOR, PORT OF SPAIN.

to tap Pará rubber trees and how coagulation was effected, together with methods of tapping *Castilloas*. All of the rubber apparatus at the laboratory was on exhibition, including many types of tapping tools, coagulating appliances, apparatus for smoking, et cetera. All of these were explained by A. E. Collens, F. C. S., analyst and chemical demonstrator.

Much of the success of the Conference was due to the remarkable organizing ability of its president, Dr. Francis Watts, the Imperial Commissioner of Agriculture for the West Indies, and to Professor P. Carmody, Director of Agriculture for Trinidad and Tobago, together with their very able and scholarly staff.

The part of the president's address devoted to rubber was as follows:

Interest in rubber has been steadily maintained in the West Indies during recent years, and considerable progress is being made. As far as observations go, the rubber boom of 1909 appears to have exercised but little disturbing influence on the work in the West Indies. This is perhaps due in no small degree to the steadying influence of the local Departments of Agriculture, which, being in close touch with planters and well informed as to local conditions, tended to discourage wild speculations, to the permanent good of the various colonies.

Work in the West Indies has included chiefly the in-



THE OIL FIELDS, TRINIDAD

roduction of rubber plants of various kinds and the extension of the areas under cultivation. It may be observed that there is now a tendency to pay more attention to *Hevea* and less to *Castilloa* than was formerly the case.

Very considerable efforts have already been made by the various Departments of Agriculture to assist in the importation of rubber seeds, principally of *Hevea*. This is shown by the figures, for some of the smaller islands, given in the following table:

Rubber Seeds Imported, 1910.

Dominica	98,200	St. Vincent	10,000
Antigua	2,500	St. Lucia	10,000
Grenada	75,000		

Much interest has been evoked by the machine invented by Mr. Smith, of Tobago, for the rapid preparation of rubber from *Castilloa* latex. It is anticipated that an opportunity will be afforded to members of the Conference for seeing this machine in operation, and for obtaining the latest information concerning it and its application.

It is interesting to note that British Guiana is exporting rubber to the value of some \$7,000 a year, and that Tobago has begun to make commercial shipments.

Reference should be made to the export of balata from British Guiana. This is an old industry in this Colony, and is dependent upon the exploitation of the native forests, the work of collecting being carried on under Government regulations intended to prevent destruction or waste of the forests. The importance and growth of the industry may be judged from the following figures relating to the exports:

1905-6	value \$40,311	1908-9	value \$98,128
1906-7	50,106	1909-10	95,507
1907-8	76,778	1910-11	139,623



AGRICULTURAL LABORATORY, TRINIDAD.

The recent International Rubber Exhibition has afforded several West Indian colonies opportunities both for bringing to public notice the facilities that they offer for rubber cultivation, and for gathering much valuable information to guide the efforts of those concerned in the developments that must take place in the West Indian rubber growing. At the Exhibition, British Guiana, Trinidad and Tobago were prominently represented, creating favorable impressions that should materialize in increased activity in rubber growing. The exhibits from the other West Indian colonies—Dominica and St. Lucia—were on a smaller scale.

Trinidad's beautiful capital hospitably opened her doors wide to the visiting scientists; and in the pauses between the sessions arranged luncheons, dinners, drives and excursions in great number. The most notable excursion was that given by "Trinidad's Rockefeller," the Honorable Mr. Cochrane, who chartered the Royal Mail steamship "Balantia" and took a party of 125 to the oil fields. It was an all-day trip and he entertained them most lavishly from dawn until dark.

At the close of the Conference the delegates took part in the great Agricultural Exhibition which was then formally opened by the Governor of Trinidad.

Below is given a list of those who attended the conference and the societies or bodies which they represented:

LIST OF DELEGATES WHO ATTENDED THE CONFERENCE.

Dr. Francis Watts, C.M.G., D.S.C., F.I.C., F.C.S., Imperial Commissioner of Agriculture for the West Indies, President.

BRITISH DELEGATES.

A. W. Hill, M.A., F.L.S., Assistant Director and representative of the Royal Botanic Gardens, Kew.

Guy A. K. Marshall, Scientific Secretary and representative of the Committee of Entomological Research.

J. W. McConnel and W. Marsland, representatives of the British Cotton Growing Association.
C. Sandbach Parker and E. R. Davson, representatives of the West India Committee.

JAMAICA.

W. Cradwick, Senior Agricultural Instructor.
Dugald Campbell, representative of the Agricultural Society.

BRITISH GUIANA.

Professor J. B. Harrison, C.M.G., M.A., F.I.C., Director of the Department of Science and Agriculture, Chairman of the Board of Agriculture and Chairman of the Board of Education, and B. Howell Jones, C.M.G., representatives of the Board of Agriculture.

Alleyne Leechman, F.C.S., Science Lecturer; G. E. Bodkin, B.A., Economic Biologist; S. H. Bayley, Superintendent, Onderneeming School Farm, and J. F. Waby, F.L.S., representatives of the Department of Science and Agriculture.

J. J. Nunan, B.A., LL.B., President and representative of the Royal Agricultural and Commercial Society.

B. Howell Jones, C.M.G., representative of the Planters' Association.

The Hon. C. G. A. Wyatt, President, and W. Douglas, F.I.C., F.C.S., representatives of the Chamber of Commerce.

TRINIDAD AND TOBAGO.

Professor P. Carmody, F.I.C., F.C.S., Director of Agriculture and Vice-President of the Board of Agriculture.

W. G. Freeman, B.Sc., A.R.C.S., F.L.S., Assistant Director of Agriculture.

C. H. Wright, B.A., F.I.C., F.C.S.; H. S. Shrewsbury, F.I.C.; Joseph De Verteuil, F.C.S.; A. E. Collens, F.C.S.; F. Evans, Curator Royal Botanic Gardens, Trinidad; J. Duncan Miller, Esq.; W. E. Broadway, Curator, Botanic Station, Tobago; J. McInroy, Esq.; H. Meaden, Esq.; J. C. Augustus, Esq.



QUEEN'S ROYAL COLLEGE, WHERE RUBBER LECTURES WERE GIVEN.

The Hon. S. Henderson and the Hon. C. de Verteuil, representatives of the Board of Agriculture.

J. Birch Rorer, A.B., M.A., Mycologist.

F. W. Ulrich, F.E.S., C.M.Z.S., Entomologist.

P. L. Guppy, F.E.S., Assistant Entomologist.

J. H. Collens, V.D., Lieutenant-Colonel, Inspector of Schools.

W. Burslem, M.A., Principal, Queen's Royal College.

Very Rev. Dr. E. A. Crehan, Principal, St. Mary's College.

C. S. Rogers, The Forest Officer.

The Rev. Dr. Morton, Vice-President; H. Warner, James Arbuckle and Dr. A. Fredholm, representatives of the Agricultural Society.

W. Gordon-Gordon and J. H. Smith, representatives of the Chamber of Commerce.

Hugo Hoffman, representative of the Permanent Exhibition Committee.

The Hon. H. L. Thornton and Thomas Thornton, A.R.C.S., representatives of the Tobago Planters' Association.

BARBADOS.

The Right Rev. W. P. Swaby, D.D., Bishop of Barbados; President of the Education Board.

Major J. A. Burdon, C.M.G., Colonial Secretary.

J. R. Bovell, I.S.O., F.L.S., F.C.S., Superintendent of Agriculture.

F. A. C. Collymore, M.C.P., representative of the Chamber of Commerce.

The Hon. Sir F. J. Clarke, K.C.M.G., President; F. C. Trollope, Lieutenant-Colonel; E. A. Robinson, W. D. Shepherd and J. L. Shannon, D.V.M., representatives of the Agricultural Society.

WINDWARD ISLANDS.

G. G. Auchinleck, B. Sc., Superintendent of Agriculture, Grenada.

His Honor R. S. Johnstone, M.A., Chief Justice; the Hon. D. S. de Freitas, President of the Society; the Hon. G. S. Seton-Browne, Vice-President; John Barclay, Esq.; W. M. Malins-Smith, Esq., and D. Hedog Jones, B.A. B.S.C., representatives of the Grenada Agricultural and Commercial Society.



QUEEN'S PARK HOTEL, WHERE THE DELEGATES STOPPED.

W. N. Sands, Agricultural Superintendent, St. Vincent.
The Hon. J. G. W. Hazell, Chairman and representative of the St. Vincent Agricultural and Commercial Society.

His Honor, E. J. Cameron, C.M.G., Administrator of St. Lucia.

J. C. Moore, Agricultural Superintendent.

A. J. Brooks, Assistant Agricultural Superintendent, St. Lucia.

Geo. Barnard, representative of the St. Lucia Agricultural Society.

LEEWARD ISLANDS.

The Hon. Edward B. Jarvis, Acting Colonial Secretary, representative of the Colony of the Leeward Islands.

H. A. Tempany, B.Sc., F.I.C., F.C.S., Government Chemist and Superintendent of Agriculture.

T. Jackson, Curator, Botanic Station, Antigua.

A. P. Cowley, representative of the Antigua Agricultural and Commercial Society.

Joseph Jones, Curator, Botanic Station, Dominica, representative of the Agricultural and Commercial Society, Dominica.

F. E. Everington, representative of the Dominica Planters' Association.

F. R. Shepherd, Agricultural Superintendent, St. Kitts.

W. H. Mitchell, M.A.

Arthur S. Davis and J. R. Yearwood, representatives of the Agricultural and Commercial Society, St. Kitts.

The Hon. J. S. Hollings, representative of the Agricultural and Commercial Society, Nevis.

W. Robson, Curator of the Botanic Station, Montserrat.

James R. Osborne, Esq., Montserrat.

A. J. Morland, Esq., Montserrat.

W. C. Fishlock, Agricultural Instructor, Virgin Islands.

DUTCH GUIANA.

Dr. P. J. S. Cramer, Director of Agriculture.

HONORARY MEMBERS.

H. C. Pearson, Editor, THE INDIA RUBBER WORLD.



VICTORIA INSTITUTE, PORT OF SPAIN, TRINIDAD.

OFFICERS OF THE IMPERIAL DEPARTMENT OF AGRICULTURE FOR THE WEST INDIES.

A. H. Kirby, B.A., Scientific Assistant.

H. A. Ballou, M.Sc., Entomologist.

F. W. South, B.A., Mycologist.

P. T. Saunders, M.R.C.V.S., Veterinary Officer.

A. H. Kirby, B.A., and A. G. Howell, Esq., Honorary Secretaries to the Conference.

MOTOR TIRES IN BARBADOS.

By a Traveling Correspondent.

THE Island of Barbados as a centre assembles on its shores South Americans, winter visitors from Europe and America, as well as many from other West Indian Islands, Demerara, Surinam, etc.

There are some 400 odd miles of good hard main roads, and one can always hire carriages or automobiles. The first automobile was imported in 1898. It was a Waltham Orient with the engine on the rear axle. Since then 209 cars have been cleared through the customs. Maxwell, Buick, Regal, Franklin, Ford, Hudson, Locomobile, Overland, Hupp and Brush, are some of the American cars seen. The Humber and Vulcan are the favorite English cars. The American cars, light and moderate in price, seem to be the favorites.

Cars arrive here fitted with various tires: Goodrich, Diamond, Michelin, Ajax, Hartford, Goodyear, Firestone, Fisk, Empire and others. Among English tires the Dunlop seems to be the favorite. A Humber touring car equipped with these tires has covered over 7,000 miles on these roads, and the tires still seem to be in excellent condition. Thirty by $3\frac{1}{2}$ is the average size of tires, although there are some 28-inch as well as some 32-inch and 34-inch. The tires wear out on the tread; very few are rim cut. During wet weather when the coral roads become very slippery chains are used.

Three concerns handle tires: The Bridgetown Garage, the Barbados Garage, and the Fisk Agency. There is a duty of 10 per cent. *ad valorem* on tires. The English manufacturers allow 15 per cent. trade discount and the American only 5 per cent. The American tires cost about \$2 more than the English. About \$10,000 worth of automobile tires are handled in Barbados every year. The Bridgetown Garage handles about half. The remainder are imported by owners and the agencies.

Old and worn out tires are shipped back to the manufacturers. About 250 inner tubes are used annually, largely Dunlop, Diamond and Michelin (Universal rims). Goodyear no-cut rims are used quite generally; a few of the old solid rims are seen, and some Goodrich Quick Detachables. There are only seven motorcycles on the island. The law requires the registration of all bicycles, and the register at St. Michael shows some 725. There are about 100 more distributed through the other districts of the island.

The Rambler and Pope were among the first bicycles brought in. They were equipped with the G. & J. and Hartford tires. Afterwards the English bicycles dropped in price, and they gradually superseded those of American make. Many Humber and Ridge-Whitworth bicycles are seen, and the Dunlop, Warwick, Liberty, Ridge-Whitworth tires are used. They are supplied by the North-British Rubber Co., Limited.

There is a well equipped tire repair department at the Bridgetown garage. A most comfortable work-shop it is, whose latticed sides insure a comparatively cool and airy interior. There is a steam vulcanizer heated by alcohol, which does good work.

There are over 100 rubber-tired carriages in the island. The solid tires last from three to nine months and generally average about 3,000 miles. The train tracks are most destructive to them, and those without wires are sometimes ripped off and badly cut. Then, too, where the roads are being repaired, the many hard sharp bits of coral cut a tire badly. The light runabouts use a 1-inch tire, and the heavier carriages require a $1\frac{1}{2}$ -inch or $1\frac{3}{4}$ -inch tire. About 2,500 feet of the solid Goodyear tire are used yearly on the island. The Hazel-Grove rubber tire made in England is also used to some extent, about 700 feet a year. The duty on both the English and American solid tiring is 10 per cent.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

BRAZILIAN RUBBER LEGISLATION.

THROUGH the approval by the Brazilian National Congress before closing its session at the end of December, the project formulated in August last by the Rubber Congress held at Rio de Janeiro became law, with certain modifications; receiving the Presidential assent on January 5. Such a result was due to the adoption of more reasonable tactics on the part of the opposition than had been recently displayed, and which, it had been anticipated, would frustrate the efforts of the government to obtain a decision before the Brazilian Congress was dissolved.

In the issue of October, 1911 (page 7), THE INDIA RUBBER WORLD published a synopsis of the project as it had then been formulated by the Commission selected for that purpose from the ranks of the delegates.

As now passed by the National Congress the decrees may be thus summarized:

1. Exemption from import duties of appliances for rubber production; subject to investigation by customs authorities.
2. Money prizes of stated amounts for entirely new plantations. (Original draft had included the graduation of such prizes according to outlay during year before the productive period).
3. Establishment of experimental stations at certain points.
4. Award of prizes to the first refining plants reducing the various qualities to a uniform type for export, and for the establishment of the first rubber goods factory in certain States. (Original project Sections 5 and 6.)
5. Construction of three hospitals and organization of a suitable staff for their service. (Original Section 7.)
6. Construction of new railroads. (Original Section 8.)
7. Exemption from duty of products intended to promote river navigation.
8. Establishment of coal depots at Amazon points.
9. Measures tending to reduce cost of provisions.
10. Adjustment of land titles. (Original Section 9.)
11. Holding of triennial expositions. (Original Section 10.)
12. Restriction to States of Pará, Amazonas and Matto Grosso of the gradual reduction of rubber export duties by 50 per cent., provided by Section 4 of the original project.
13. Authorization of special regulations as to the Territory of Acre.
14. Provision of necessary funds.
15. Contrary enactments abolished.

The principal features of the original project seem to have been retained, with the exception of the change in clause 4 of basis of awarding prizes and the limitations by clause 12 to certain States of the graduated reduction in export duty. The Executive authority is authorized to enter into an agreement with the States of Pará, Amazonas and Matto Grosso, with the view of a gradual reduction of 10 per cent. (up to the maximum reduction of 50 per cent.) in the present rate of export duties imposed by those States upon the rubber produced within their territories; and exemption from all tax of such rubber within the term of 25 years from date of this law. After the conclusion of such agreements, negotiations will be permissible as to rubber from the Federal District of Acre.

JOHN C. WILLIS, M.A., SC.D., formerly director of the Royal Botanic Gardens, Ceylon, and a well known lecturer and writer on various phases of rubber planting, has been appointed director of the Botanic Gardens at Rio de Janeiro and will sail from England April 4, to assume the duties of his new position.

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

Rubber Expositions as a Trade Stimulus.

*By Sir Henry A. Blake, G.C.M.G.**

TWO stalwart young London judges playing "pull devil pull baker," with various sheets of rubber gave me my first introduction to the practical testing of sheet and biscuit rubber in the prize competition at the first rubber exhibition held in the beautiful Botanic Gardens at Peradeniya in Ceylon. The rubber was being tested for tensile strength, tenuity, and resilience. This was in the year 1906.

In 1873 the first seeds of the *Hevea Brasiliensis* were brought to the Royal Botanic Gardens at Kew by Mr. Wickham, whose success in obtaining them and sending them to England, showed great readiness and resource. The seeds were intended for India, but as there was at the time a scare against the possible introduction of plant diseases into India that Government refused to receive them, and they were sent to Ceylon instead, where a plantation was made at Heneratgoda Botanic Gardens. From those trees, now large forest trees, came the seeds that have spread the cultivation of *Hevea Brasiliensis* from Ceylon to Java and Papua in the east.

In Ceylon, the young trees were planted as shade trees for tea, and in some cases as avenues along the roadsides. For many years nobody seemed to realize the value of the latex. At length when cutting some shade trees, an intelligent observer pointed out that this was the basis of rubber for which high prices were being obtained. At once owners of quantities of these shade trees found themselves comparatively rich men. Prices continued to rise, and in 1905, 6 and 7 feverish anxiety was shown to take up and plant lands suitable for rubber. In 1910, the price of rubber rose to 12s. per pound, and the shares of producing companies mounted with amazing rapidity. Immense fortunes were made by some, and rubber properties were considered inexhaustible sources of wealth.

At the close of 1905, it was proposed that an exhibition of everything connected with the planting and preparation of rubber should be held. The extraction of the latex and its preparation were so far very simple. The latex was poured into soup plates, where it coagulated. Next day it was rolled out by a bottle to about one-quarter of an inch thick, washed and placed in a drying room. When dried it was ready for the market.

The exhibition was opened in September, 1906, and here, for the first time, was brought together all that was known of the various processes connected with plantation rubber. It may be mentioned that the gold medal for the best biscuits was won by Ceara rubber biscuits grown at an elevation of 3,500 feet. During this exhibition, papers were read and discussed that dealt with every phase of the important industry and a mass of information was recorded that was of importance for all rubber growers.

This first exhibition showed how much remained to be investigated, not alone in the propagation of the trees, and in the

chemistry of the latex, but also in the effects upon the trees, of the different modes of tapping, and the means to be taken for combating the pests of various kinds that began to present themselves.

Hundreds of thousands of acres were taken up in India, Ceylon, Malaya and Java for rubber plantations; Africa was exploited east and west; Central America was examined with a view of cultivating Ceara and other rubber trees, and South America, the original home of the *Hevea Brasiliensis*, was being searched from the Atlantic to the Pacific for locations likely to attract investors; when it was proposed that an exhibition should be held in London, in which all countries interested in

this now colossal business should join in mutual inquiry and friendly competition. The industry had advanced with extraordinary rapidity, and there seemed to be no bounds to its expansion in Europe and America.

The proposal received an enthusiastic response from all parts of the world. The exhibition was held at Olympia in London, from the 14th to the 26th of September, 1908, and contained exhibits of all existing forms of rubber, while practical planters and scientific experts from east and west vied with each other in friendly interchange of opinions, and valuable discussions on the papers read before the International Conference during the twelve days of the exhibition.

The result was considered very satisfactory. The exhibition had brought together producers and manufacturers from the East, from Europe and the United States of America, and brought under the notice of investors, possibilities hitherto not appreciated. While the rapid

growth of demand assuaged the fear of over production. The collocation of the papers submitted to this conference and edited by Dr. Spence, PH.D., F.I.C., shows within its 300 pages how wide a field was covered by the discussions, and how valuable were the facts and experiments thus placed at the disposal of the conference. At the close of the exhibition, it was felt that these International Exhibitions and Conferences of men engaged in the great industry so rapidly expanding into a position in the first rank of the world's commerce, ought to be continued, where fellow workers of every nation might draw from a common store of knowledge, experience useful to all, and help each other forward in their efforts to increase the supply of Nature's products for the benefit of mankind.

It was decided that an exhibition on the same line should take place in 1911, and it was felt especially that the manufacturers should be invited to participate, in the hope that fuller indication might be given of the particular form in which plantation rubber should be presented to the market. Much had been done since the first Ceylon exhibition, but in the range of caoutchouc producing plants there was much still to be learned, as also in the processes of securing the latex at least cost to the health of the trees, and in its preparation as crepe, blanket, sheet or block for the market. Vulcanization is also a vital process on which the last word has not been said; while the consumer is invited to contemplate new uses that may add



SIR HENRY ARTHUR BLAKE, G.C.M.G.

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materially to his comfort and possibly decrease his expenditure in the future.

This third exhibition was held at the Agricultural Hall in London, from June 24 to July 14, and was again a brilliant success. There was a considerable increase in the number of British and foreign manufacturers, and new sources of supply were shown. Brazil retained her pre-eminence, not alone as a source of supply, but as furnishing a standard of perfection. Great advances have been made in the details connected with the production of plantation rubber, and improved machinery was much in evidence. There was also a demonstration of a new process for the production of synthetic rubber, that may yet find a place in the rubber market.

Once more the salutary principle was adopted of making the exhibition the opportunity for holding an international conference, the outcome of which may be seen in the admirable souvenir of the proceedings since published. Prizes were given by THE INDIA RUBBER WORLD, of New York, for the best system of extracting latex from the *Castilloa Elastica*; by the "India Rubber Journal" of London, for the best sample of plantation rubber; by "Grenier's Rubber News," Federated Malay States, for the best sample from Malay States; by the "Association des Planteurs de Caoutchouc," for best sample from Dutch East Indies, and by the West India Committee for best samples of rubber, and balata from the West Indies.

During the exhibition it became known that an international exhibition on somewhat similar lines was projected for New York, and now that the project has materialized, further progress will doubtless be made in the solution of many problems with which rubber planters and manufacturers have still to deal. Great as is the production in sight, the horizon of demand is ever widening. One hundred and forty years ago, its only known practical use was as an eraser of pencil marks. Today it ministers to the wants of the infant in his cradle as well as to the comfort of the aged, while in one form or another it enters with frequency into the countless demands of civilization.

Among the exhibits at the Agricultural Hall, there was one that promised important developments. This was a section of rubber prepared for road work, but not yet fulfilling all the necessary conditions that would enable it to compete with the quarry and the forest for the preparation of road surfaces for heavy traffic. That this difficulty will be overcome, there can be no doubt, and when it has been, any possible doubt of a limitless demand will vanish like a moving mist. Silent streets with the cessation of the turmoil and roar of traffic, would in relief of brain fag to the busy worker, be the most potent factor for health and strength ever offered to the business men and women of great cities, while imperviousness to water would obliterate dust and mud, carry off equally heavy rains or melting snows, and save the endless labor on frost upheavals every spring that try the equanimity of dwellers in New York.

There is a giant in the path whose name is "skid," but Jack the Giant Killer will emerge from some busy inventive brain, and demolish the skid by a non-slip grip surface that will withstand wear and tear and secure safety in all weathers for horse or motor. From which side of the Atlantic will he emerge?

There's the rub!

SEVENTY-FIVE HUNDRED DOLLARS FOR RUBBER INVENTORS.

At the New York Rubber Exposition, which will open in September next, the conditions will be published in reference to prizes to the value of £1,500 to be offered by the London 1914 Rubber Exposition. This amount is to be divided into three prizes and is to go to the inventors who can suggest a method of making rubber non-slipping for outside use, as pavement, roadway, and wherever rubber is exposed to all atmospheres and to heavy traffic.

No claim will be made on the inventors by the exposition

authorities for any rights or controlling interest in the invention. The prizes will be awarded free of any restriction. Thus while the inventors receive the awards, their patents or inventions will be their own property.

THE NEW YORK RUBBER EXPOSITION.

A. Staines Manders, the organizing manager, has returned to New York after his tour of many countries in the interest of the rubber exposition to be held in New York next September. An interview which a representative of THE INDIA RUBBER WORLD had with Mr. Manders shows that very rapid progress has been made in the organization, and that success is already assured. In answer to questions as to the support that has been given to the exposition in the various branches of the industry, he said:

"I may say that Brazil, Peru, Mexico, Trinidad, British Guiana, Jamaica, the Hawaiian Islands, Cochinchina, Equatorial Africa, Occidental Africa, Madagascar, Lower Burmah, Belgium and the Congo, Ceylon, British Malaya, the Republic of Honduras, Manila and Portugal will exhibit, and many other countries are now negotiating for space.

"You are also aware that the Rubber Growers' Association, at the general meeting held at the London Chamber of Commerce this month, decided to give a series of gold medals for the best samples of plantation rubber produced in any of the rubber-growing countries of the world. The general support and promises have been beyond my expectations. I have been meeting with the most spontaneous support from rubber manufacturers and allied trades of America as well as the allied trade firms of England and the Continent.

"Here I have hundreds of letters to reply to that have been waiting my return from manufacturers of this country. It may interest you to know an important announcement will be made which will be of interest to manufacturers. £1,500 is to be offered to the inventor or inventors who can suggest the best method of making rubber non-slipping for roads or for any use to which it may be put in all atmospheres and for all kinds of traffic. The idea is to divide the sum into three prizes. An important point is that the inventor or inventors will have absolute right to the invention, the patent being conveyed free to the successful competitor or competitors."

Mr. Manders expressed the belief that the outcome of the exhibition would be a general expansion of the rubber industry, due specially to the coming together of the leading producers of rubber and the greatest rubber consumers of the world. Mr. Manders maintains that there is no more effective form of advertising than that to be obtained by an exhibitor at an exhibition, in which the formulated character of the exhibits is strictly adhered to, and to which nothing is admitted out of harmony with the industry to which the exhibition is devoted.

Mr. Manders went on to say: "I wish to tender my thanks to the gentlemen who so kindly came forward to support the undertaking by joining the Honorary Advisory Committee—which, I may state, does not entail any liability or responsibility.

"To THE INDIA RUBBER WORLD, the press of America and throughout the world, I am most grateful for the support they have been giving this undertaking, and you may assure the readers of THE INDIA RUBBER WORLD that the exposition will be equal, if not superior, to the one held in London last year, and will be conducted in the same high class manner. If you peruse the list of gentlemen on the committee who are associated with it, not only in America but throughout the world, it will give you some idea of the interest that has been taken in the first rubber exposition to be held in America."

Mr. Manders' address is the New Grand Central Palace, 46th to 47th street and Lexington avenue, New York City.

PLANTATION RUBBER IN GERMAN EAST AFRICA.

IN an interesting booklet, Dr. Eduard Marckwald has recorded his impressions of the condition and prospects of rubber planting in German East Africa, with the object of pointing out the steps which should and must be adopted for ensuring the profitable operation of the industry in the territory named. He explains, however, that his report is incomplete, as the interruption of his journey from personal reasons prevented him from becoming acquainted with the Southern portion of the country. At the same time, by the courtesy of planters and officials, he was enabled to gather a quantity of information as to the Usambara district, the most important section, as far as rubber is concerned.

Apart from the many phases of the subject possessing general interest, Dr. Marckwald, in dealing with its detailed features, expresses the opinion that the most suitable variety for planting in East Africa is *Manihot Glaziovii*. Rainfall conditions in a large part of the territory do not, in his opinion, allow of *Hevea* being planted. While sufficient rainfall for *Hevea* is recorded in isolated cases, as a general rule it varies considerably from year to year. Attempts to cultivate *Kickxia* and *Castilloa* have proved unsuccessful. While the reason of these failures is purposely not discussed, caution is expressed against the cultivation of the recently much vaunted *Manihot Dichotoma* and *Manihot Piauhiensis*, experiments with which are described as having totally failed, as they grow badly and slowly, giving only small yields of medium grade rubber. The plants are so fragile, that the plantation is liable to destruction by wind storms.

While the question of the best variety for planting is met by the recommendation of *Manihot Glaziovii*, the poor selection of that seed at the disposal of the German plantations has been an obstacle to the carrying out of the advice thus given. Experiments in soils of like character, with trees planted and tapped at the same time and of the same girth, have shown yields very largely differing in quantity. Such a divergence, in Dr. Marckwald's opinion, is exclusively due to the seeds being of high or low quality. Consequently he urges the necessity of paying special attention in future to the choice of seeds, particularly in the laying out of new plantations.

ALTITUDE.

With reference to the opinion expressed by Herr von Lindequist, that *Manihot* cultivation could be better developed at a height of 1,500 to 3,000 feet than at lower altitudes, Dr. Marckwald expresses the view that while this statement may be applicable to many countries (as for instance Ceylon), in the German colonies it is useless to expect satisfactory results at a height exceeding about 2,600 feet.

WHEN AND HOW TO PLANT.

The best time for planting is the lighter rainy season, and not, as hitherto often has been the case, in the period of heavy rains. Planting in the latter time leads to crooked growth, while trees planted in the first-named season grow straight. Planting should be at least on the scale of 16 x 16 feet, or even 20 x 20 feet. Closer planting (though usual in German East Africa) is undesirable, in Dr. Marckwald's opinion. It is of course assumed that the soil is of a suitable character.

TAPPING.

Tapping, it is added, should only be undertaken with trees of suitable character, and which have a bark of sufficient thickness to permit of a deep incision without injury to the wood. This operation should not take place before the third year. At an earlier stage the rubber has not been formed and the bark is so thin that injury results. Dr. Marckwald strongly condemns premature tapping, such as takes place in some cases at the age of eighteen months.

In the course of a planters' meeting at Tanga, he had an opportunity of seeing rubber, said to have been obtained by a new tapping process from trees only 10 months old, the light color

of which was urged as a proof of its excellence. Unfortunately for this theory, Dr. Marckwald was able to assert that the product, which was viscous and without nerve, was the worst sample of *Manihot* which had ever come into his hands. He further dissented from the opinion expressed by the inventor that it was good enough to rank as a second-grade quality from young trees, as he considered principal attention should be given to producing a single uniformly first-class article.

From the third to the fourth year *Manihot* trees can be tapped in regular succession throughout the entire year, with the exception of the short period during which they shed their leaves.

A STANDARD EAST AFRICAN QUALITY.

On the general question of rubber production, Dr. Marckwald urges the view that only the production of a high grade pure and uniform article of the first standard of merit, will render it possible for East Africa by means of such a standard to hold its position in the impending keen competition. German East African rubber, it is added, can only attain such recognition by means of a simple and cheap coagulant. The principal difficulty seems to be in the rooted convictions of many planters that their own methods are the best.

One remarkable circumstance in connection with East African plantation yields, is that the results of various plantations show a marked divergence, which may be considered as illustrating what the tapper brings in, rather than what the trees produce.

After reference to the details given of tappings extending over several months, the opinion is expressed that it will probably be found possible to increase the yields by proper irrigation and manuring, the beneficial results of using imported fertilizers being shown in an improved quality of product.

After drying, the rubber is in many East African plantations subjected to a process of smoking, with the view of thus improving the quality. This idea of smoking owes its origin to the Brazilian custom of using the smoke of *Urururi* nuts or *Massaranduba* wood, rubber smelling of smoke fetching a better price. While this smoke contains certain products of combustion, exercising special effects, the process of smoking as carried out in East Africa has, it is remarked, no influence upon the quality of the rubber. Still, when carefully performed, smoking is harmless and prevents the formation of mildew, which really does not deteriorate the quality, although made use of as a pretext for reducing the price.

In connection with the washing of East African rubber, the opinion is expressed that where the plantation has only weak rolls, with native attendants, in which the rubber loses only a small quantity of dirt, such an operation is useless. Conditions, however, are different where proper washing rolls have been installed, which are tended by careful hands, even without technical experience.

Dr. Marckwald asks whether, notwithstanding the various objections raised, washing can be regarded as helping the standardization of East African rubber, which seems unattainable today by any other means. He is disposed to answer the question affirmatively, suggesting an agreement between the larger companies (under both German and English direction) for the production of a uniform quality; washing taking place during a provisional term of three or four years. The washed products must be technically absolutely pure and must be constantly supervised by persons of known integrity and impartiality. Manufacturers, it is added, should be able to use East African plantation rubber without having to subject it to another washing.

Other points of interest are likewise touched on by Dr. Marckwald, such as the cost and prospective selling prices of East African *Manihot* rubber. In the above brief summary, however, a few of the many interesting features of Dr. Marckwald's "Traveling Impressions" have been quoted, with the hope that he may long be heard from on the important subjects so ably treated.

The Story of Funtumia.

WHILE the genus known generally as *Kickxia* (of the order of *Apocynaceae* and the tribe of *Echitideae*) had long been known to botanists as growing in Southern Asia, a species of West African origin was first recorded in 1876 by Bentham and Hooker, being subsequently described in 1879 as *Kickxia Africana*. In 1898, Dr. Preuss discovered in the forests of Kamerun a species of *Kickxia* whose latex produced first-class rubber. This new species was designated by him as *Kickxia elastica*, by which name the tree and its product are still known in Germany.

It was afterwards placed in a separate genus by Dr. Stapf of the Kew Herbarium. Up to 1905 the genus *Kickxia* had included species inhabiting two widely separated areas, Malaya and tropical Africa; but after careful study, Dr. Stapf in that year



MAP OF AFRICA

came to the conclusion that the two groups have every claim to be considered as two distinct genera. While retaining the name of *Kickxia* for the Malayan group, he proposed for the African species (hitherto referred to *Kickxia*), that of *Funtumia*, derived from "funtum" or "ofruntum," the vernacular name for the rubber-yielding tree of the Gold Coast. He further demonstrated that while various points of external similarity between the two groups had misled botanists, there were differences in their respective characters, as great as those in any two genera in the tribe of *Echitideae*.

This African rubber-yielding tree has been dealt with in a lucid and comprehensive form by Mr. Cuthbert Christy, in his recent work on the subject ⁽¹⁾. While the brief review of this book in these columns ⁽²⁾ specified its leading features, the subject has been treated by the author with such thoroughness as to invite more detailed consideration.

DESCRIPTION OF FUNTUMIA ELASTICA.

Funtumia elastica is the current botanical name of the rubber-yielding "funtum," "ofruntum," or "ire" tree of West Africa; previously known as *Kickxia Africana* (as already explained.) It is an evergreen forest tree growing to a height of 80 to 100 or 130 feet, with an average girth, a yard from the ground, of 4 to 8 feet. The tall and tapering character of the trees (the trunks of which are often without branches up to the height of 80 or 100 feet) renders them objects of prominence. With old mature trees the bark is chiefly of a smooth dark green; being almost black at the base when the forest is dense, but a mottled grey in the upper part of the tree, and where it stands in an open space. The branches, few in number, and with scanty foliage, are only at the top of the tree, while the leaves are oblong, varying considerably in shape and size; being normally from 5 to 10½ inches long, and 2 to 4¾ inches wide, with undulating surfaces.

DEVELOPMENT AND RATE OF GROWTH.

After dealing with the questions of flowers and fruits, Mr. Christy next takes up the development of the sapling. The tiny seedling during the first year expends most of its energy in establishing its roots as deeply as possible. During the second long rainy season, a year after germination, the young forest plant grows to a height of 1 or 1½ foot. Shoots appear in the third year, bifurcating annually until the eighth or tenth year, when the young trees are 20 to 30 feet high. As fast as the higher branches appear, the lower ones dwindle, die, and ultimately drop, so that one seldom sees more than two sets of branches (that is, two sets of annual growths) on a forest tree at one time.

Under normal African forest conditions, it is remarked that *Funtumia elastica* is very slow-growing from a planter's point of view, as in all probability is *Hevea* under similar conditions. It is, however, added, that under cultivation the tree grows much more rapidly than in the wild state—nearly three times as fast under favorable circumstances.

The condition of the saplings at various ages is recorded, as below, as the result of the examination of several hundred specimens in young forest in Uganda:

	Height (feet).	Girth (inches).
Fifth year	9.50	3.46
Sixth year	13.43	4.28
Seventh year	17.58	5.91
Eighth year	24.32	7.91
Ninth year	28.57	10.75
Tenth year	30.00	12.93

DISTRIBUTION OF FUNTUMIA.

Funtumia is, generally speaking, confined to that portion of Equatorial Africa bounded by the parallels 10 N. and 10 S., being essentially a West African tree. The dense forests in which it thrives follow the northern shore of the Gulf of Guinea as far as Dahomey, where a detour includes Southern Nigeria. Crossing the center of the continent, and traversing the French and the Belgian Congo, it reaches Uganda, Victoria Nyanza and the Nile with some small outlying points on the east coast, in Zanzibar and Mozambique. The principal countries in which *Funtumia* is relatively abundant are thus: Liberia, Ivory Coast, Gold Coast, Ashanti, Southern Nigeria, Kamerun, French and Belgian Congo and Uganda; being found to a less extent in Northern Nigeria and Angola. Within the area more especially near the equator, the tree is to be found in almost all the large dense evergreen forests. In cases where the forest is hilly, the rubber trees are found in belts at a certain level, generally near

(1) The African Rubber Industry and *Funtumia Elastica* (*Kickxia*); by Cuthbert Christy, M.B., C. M. (Edin.), London, 1911.

(2) THE INDIA RUBBER WORLD, August, 1911; p. 416.

the base of the hills or along low dry ridges running from them. An apparent peculiarity of this species (well marked in Uganda, but less so in western Africa) is its habit of growing in groups, varying from "family parties" to large belts and areas several square miles in extent.

ALTITUDE

Funtumia elastica, Mr. Christy remarks, thrives best in the moist hot regions of the tropical zone. The altitude of the west African forests in which it grows so luxuriantly is comparatively low, being in Southern Nigeria generally only 300 or 400 feet, or in Kamerun between 300 and 1,500 feet. It is, however, found at higher altitudes—on the Kamerun mountain at over 2,000 feet and in the rubber zone of Angola at 4,000 to 5,000 feet. At the eastern limit of its distribution, in the forests of Uganda, it flourishes at a similar elevation.

CLIMATE.

As the chief factors in determining the climate of a region are rainfall and temperature, it is appropriate to consider them together. Rainfall, in particular, is a very important element in defining the suitability of any given locality for the cultivation of *Funtumia elastica*.

In Sierra Leone, the average rainfall for the four years ending 1908 varied, according to location, from 100 to 165 inches, the temperature ranging from 71 degs. Fahr. to 91 degs. Fahr. During July and August, the two wettest months, it varied from 71 degs. to 84 degs. Fahr. Liberia, which is mostly covered with dense forests, has an exceedingly humid climate for nine months of the year, with an annual rainfall of about 150 inches in the coastal districts. During the short dry season the temperature ranges from 50 degs. Fahr. to 100 degs. Fahr., while at other periods there is little variation night or day from the mean of 75 degs. Fahr. The "Hinterland" has a much lower rainfall than the western part of the country.

The rainfall on the Gold Coast and in Ashanti varies according to the physical configuration of the country, being greatest at Tarkwa (92 inches) and least at Accra (25 inches). In the temperature there is less extensive variation, the average maximum varying from 81 degs. Fahr. to 87 degs. Fahr., and the minimum from 68 degs. Fahr. to 72 degs. Fahr. Southern Nigeria displays a relatively high rainfall, ranging according to

Kamerun displays two distinct climates, that prevailing at Victoria and round about the Kamerun Mountain, and that of the rest of the colony. The rainfall in the former section is very much the heavier of the two. At the typical plantation of Moliye, near Victoria, the annual rainfall in the period from



A TAPPING PARTY AND THEIR IMPLEMENTS.

1906 to 1909 ranged from 115 to 140 inches. Debundscha, also near Victoria, at the foot of the mountain, said to be the second wettest place in the world, has a yearly rainfall which often exceeds 400 inches, as much as 4 inches having been known to fall in a single night. The southeastern region of the colony has a relatively lower average rainfall, generally ranging from 52 to 70 inches.

In the root-rubber district of Angola the annual rainfall is only 35 inches, the maximum temperature being 96 degs. Fahr., and the minimum 26 degs. Fahr. Excepting in the more elevated portions, which contain the large forests, having consequently a lower temperature, the climate of Uganda is not dissimilar to that of the Congo and Western Africa. As Mr. Christy remarks, soil and other conditions being favorable, the *Funtumia* tree will probably thrive best in those parts of Equatorial Africa in which the rainfall is about 100 inches per annum, while it should certainly not be less than 50 or 60 inches.

OTHER SPECIES OF FUNTUMIA.

The genus *Funtumia* includes besides *Funtumia elastica* two other species, *Funtumia latifolia* and *Funtumia Africana*, the latices of which contain little or no caoutchouc. Hence preponderating attention is claimed by *Funtumia elastica*, so far as the rubber industry is concerned.

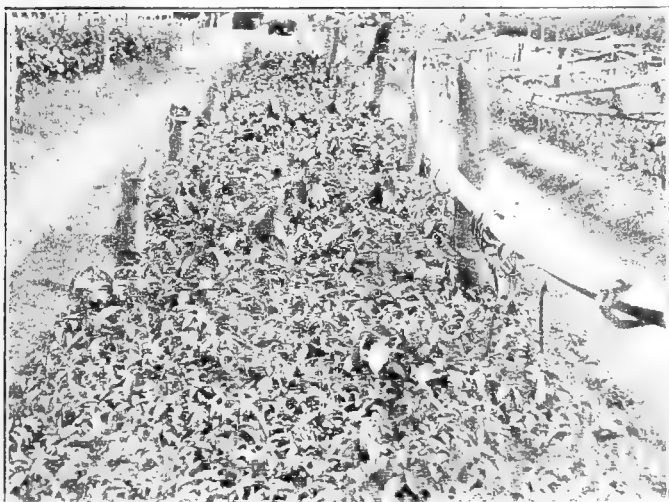
NATURE OF SOILS.

In the Chagwe forests of Uganda the prevailing soil is red and clay-like, *Funtumia elastica* apparently thriving better in that soil than in any other. The close coincidence in the Uganda forests between the limits of the rubber areas and the line of demarcation between the red and the black soil, is very marked, and, in Mr. Christy's opinion, the tree will flourish in almost any red soil, if rainfall and other conditions are favorable.

PROPAGATION OF SEEDS.

Funtumia seeds have been known to retain their vitality as long as five or seven weeks, while in the ordinary course they will germinate in about 28 days after being sown in damp earth. The native practice followed in the communal plantations of Southern Nigeria, of transferring seedlings direct from the seed bed to the clearing, and protecting them from the sun for the first few months by raised grass and rubbish, is quite successful in small areas.

In Mr. Christy's opinion, complete felling, firing, clean-weeding and holing, entail unnecessary expense, presenting the further



A *Funtumia* NURSERY AT BOTANIC GARDENS, ENTEBBE, UGANDA.

locality from 75 to 133 inches, the variation of temperature recorded for 1908 having been from 69 degs. Fahr. to 94 degs. Fahr. In Northern Nigeria (where, it will be recalled, there is nowhere an abundance of *Funtumia*) the rainfall for 1909 ranged from 44 to 59 inches.

disadvantage of destroying the soil humus. The alternative to clearing the ground completely is to cut out the underwood and smaller trees only, leaving the timber standing. He is convinced that *Funtumia* cultivation can be thus successfully carried on, as has more or less been the case in Uganda, this plan being far cheaper than orthodox methods.

ARTIFICIAL PROPAGATION

This can be effected by cuttings, but, generally speaking, this method is considered to possess no advantage over propagation by seed, as the plants produced have a disposition to branch too freely. Cuttings of medium hard wood, out of the previous season's growth, rooted readily in 100 days, while in Kamerun a period of five weeks was found sufficient. The progress made at the Botanic Gardens, Entebbe, Uganda, is shown by annexed illustration of a *Funtumia* nursery.

GENERAL METHODS OF PLANTING

Funtumia cannot be successfully grown if interplanted or intermixed with other crops. Instead of an extended spread of foliage and a surface-root system, like *Hevea*, it has a pole-like habit of growth, with a comparatively small spread of foliage and a deep-root system. The importance of close planting is likewise emphasized, wide planting retarding tapping operations. By planting closely in pure plantation form and subsequently thinning, an even height of canopy, and consequently of stem, can be maintained.

NUMBER OF TREES PER ACRE.

Funtumia, it is asserted, can be planted in three or four times the usual number of *Hevea* trees per acre. According to a de-

FUNTUMIA VERSUS HEVEA.

While disclaiming the intention of asserting that *Funtumia* is a better plantation rubber tree than *Hevea*, Mr. Christy expresses the opinion that the indigenous tree is the most suitable for general plantation purposes in tropical Africa. Although he has seen *Hevea* trees in West Africa equal in size to trees of the same age in Ceylon, he remarks that owing to the very small number of *Hevea* trees tapped (mostly in botanical gardens) there is as yet insufficient evidence that they will yield as well as trees in Malaya or Ceylon. In this connection he refers to the difficulties attending tapping operations, owing to the hard and thick bark displayed by *Hevea* in Africa, instead of the smooth and soft type found in the East. There is no comparison between the two, it is added, in the cost of planting and upkeep of estates; among other points in favor of *Funtumia* being that any quantity of the seed is obtainable free, while native supervision is sufficient for the necessary operations.

GROWTH IN THE PLANTATION.

In the open, in full sunlight, with top shade, and in a sufficiently moist climate, *Funtumia* is stated to be a comparatively quick grower, arriving at the producing stage fully as rapidly as *Hevea*. As, however, there are as yet no plantations in Africa, where any large number of trees can be seen growing under the most favorable conditions, it is difficult to say exactly what the dimensions of plantation trees should be at any given age. In a detailed account of the Botanic Gardens at Victoria, Kamerun, Mr. Christy refers to the extensive agricultural experiment station and laboratories at that point, under the guidance of Dr. Hermann Blicher, the Director of Agriculture. There are, he adds, a great many large cacao plantations in the neighborhood of the Kamerun Mountain, on nearly all of which considerable areas are planted with *Funtumia*. Owing to the considerable rainfall in this district *Funtumia* apparently thrives. From his observation of these plantations, Mr. Christy has made the following approximate estimate of the average girth to be expected at different ages in plantation trees grown under favorable conditions: 3 years, 8 inches; 4 years, 12 inches; 5 years, 16 inches; 6 years, 21 inches; 7 years, 26 inches; 8 years, 30 inches; 9 years, 33 inches; 10 years, 36 inches. In this way the average girth was obtained, which has been reached at different ages under varied planting conditions.

TAPPING METHODS AND REQUISITES.

In connection with the subject of tapping, two illustrations are reproduced by the courtesy of the publishers of Mr. Christy's work. One represents tapping with the "*Funtumia* knife," by the aid of slings and portable staging at a communal plantation in Southern Nigeria; while the other depicts a native tapping party with their implements and bags containing rope slings for climbing.

FOREST YIELDS.

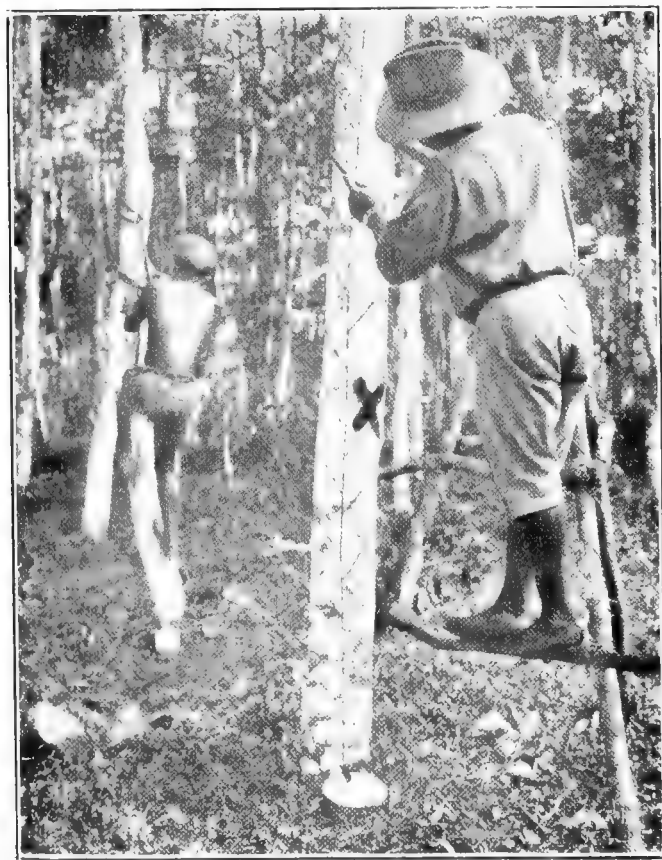
Yields from pricker incision tapping have been found by experiments in Uganda during the rainy season, to be far greater than those from excision methods. Incision records show that wild trees of fair size, tapped to a height of 30 feet, will yield $\frac{1}{4}$ to $\frac{1}{2}$ pound, or even in some cases 1 pound of dry rubber at one tapping. In the absence of similar records for West Africa, it is considered that the trees in that moist, hot climate are doubtless better yielders than those in the upland forests of the Eastern Protectorate.

PLANTATION YIELDS.

In connection with plantation operations, it has been found that with excision tapping, involving loss of tissue and leading to consequent injury, the yields from second and third tappings are much less than from the opening cuts. By incision tapping, on the contrary, the yields from the subsequent tappings are nearly as good as from the opening cuts. It is possible to make two or three tappings in a year, reaching a greater total annual yield than by any other process.

EXPERIMENTS WITH TREES.

Experiments with trees five to ten years old, growing under



TAPPING WITH THE "*Funtumia* KNIFE," WITH SLINGS AND PORTABLE STAGING.

tailed table, 109 trees can be planted per acre with a distance of 20 feet between each tree, and in rows 20 feet apart, the number of trees or plants then increasing in proportion to the reduction of the distances.

favorable conditions, have led to the results shown by following table:

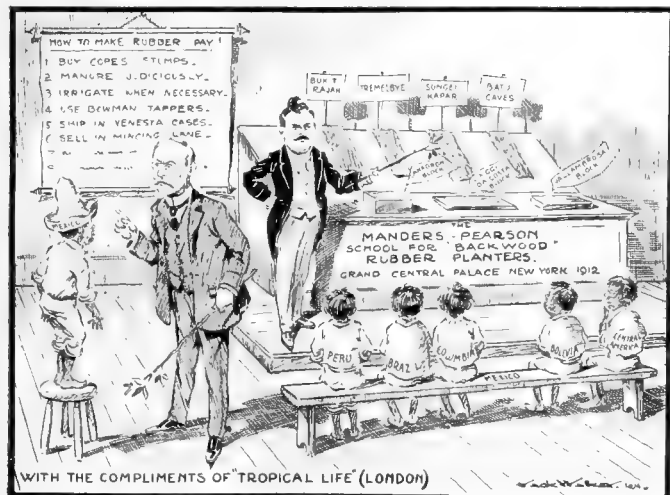
Age of trees in years.....	5	6	7	8	9	10
Girth in inches	16	21	26	30	33	36
Height of tapping in feet.....	9	10	12	16	20	23
Number of tappings per year.....	3	2	2	3	3	3
Annual yield of latex in cubic inches...	13	15	19	34	45	56
Approximate annual yield of dry rubber in ounces	3	4	5	9	12	15

FUTURE OF THE AFRICAN RUBBER INDUSTRY.

While some of the leading features of the cultivation and extraction of *Funtumia* rubber have thus been glanced at, there remains much to be said as to its properties and use in manufacture. As a result, however, of Mr. Christy's able treatment of the question, his investigations lead to a conclusion, which may appropriately be recorded in his own words: "It is difficult to see how extermination of the wild rubber trees in tropical African forests can be prevented even with the best intentions on the part of governments and private owners. The only salvation of the rubber industry in this part of the world seems to lie in the wholesale planting of *Funtumia*, fortunately a very cheap and easy matter, as I have already shown."

THE WAY "TROPICAL LIFE" VIEWS THE SITUATION.

THE cartoon reproduced below is taken from "Tropical Life," printed in London. The International Rubber and Allied Trades Exposition, to be held in the Grand Central Palace, New York, next fall, is represented as a school room, where Mr. A. Staines Manders, the organizer of the exposition, and Mr. Henry C. Pearson, vice-president, are the instructors. This



SCHOOLMASTERS MANDERS AND PEARSON.

scene evidently shows a preparatory class, and Mr. Manders is giving instructions to sundry of the South American States, while Mr. Pearson has Mexico over in a corner giving him a little private tuition. As Mexico failed to put in an appearance at either of the London expositions—held in 1908 and 1911—the brunt of Instructor Pearson's remarks are evidently to the effect that Mexico is no longer to play truant, but must show up at the New York exposition along with the other members of the American rubber family. It is certainly to be hoped that these timely instructions will be heeded.

SOUTH AMERICA AND THE NEW YORK EXPOSITION.

"TROPICAL LIFE," a publication published in London in the interest of tropical development, had an article in a recent issue regarding the South American Republics, a number of which are now celebrating the centenary of their independence, and calling attention to the fact that an excellent feature of that celebration would be a joint exhibit of their rubber producing qualities in the New York exposition, to be held next fall. The paper remarks:

Would it not be an excellent idea to take advantage of the 1912 International Rubber Exposition in New York as one means of celebrating the united centenaries of the Pan-American Republics, by calling attention to them in a striking manner as rubber-producing centres, both self-planted and indigenous? If this were done, Pan-America, at the very hub of her wheel of commerce, could prove by the varieties of rubbers that are hers to show, the varieties of rubber that she alone is capable of producing indigenously.

It was just such a joint exhibit that we tried so hard to arrange for the London Exhibition, and were only prevented from carrying our intention to a successful issue by extreme pressure of work and the lack of any organized body to support us. In America, however, the situation is very different. Leaving the chief producing centres to include individual exhibits, as Brazil, Bolivia, etc., did in London, a prominent joint display, brought together by the Pan-American Union, in collaboration with the Ministers of Agriculture of the numberless States that go to make up the various Republics, would be a striking advertisement for all time of American rubber. The sample collection thus formed could be housed in a roomy space, exactly as the joint exhibits of Malaya, Ceylon, Southern India, the German colonies, etc., were provided with at Olympia in 1908 and the Agricultural Hall this year, so as to enable producers, shippers, buyers and manufacturers to meet on common ground, examine and criticize the samples, and make suggestions as to how their quality could be improved and rendered more suitable for the work for which they are destined.

Again, the Government representatives, the *estrada* or estate owners, etc., could discuss between themselves or with other experts such knotty questions as the best methods of tapping, coagulating, preparing, and packing the rubber, whether *Hevea*, the *Manihots*, *Castilloas*, *Sapiums*, *Hancornias*, etc., Inter-State and Inter-Republic questions of export duties improved and cheaper river and land transport, planting up the high forests and hinterlands, with provisions for the rubber tappers, and all such matters that tend to reduce the cost of production, and so to enable the South American centres to successfully compete with the East, could be and should be exhaustively discussed if Brazil, Bolivia and Peru are to develop their rubber forests to best advantage. In London, Mr. Staines Manders kindly offered to place a separate room at the disposal of those interested in indigenous rubber, and no doubt he will do the same, if possible, for Pan-American producers in New York. In any case, if the Republics take a space for a joint exhibit worthy of themselves, it should certainly be as large as that secured by Brazil alone in London; such an area, at least, would be needed to allow room for the samples, and for the various representatives to meet together and discuss questions of common interest, either privately or at the general congress. We only hope that this idea will be adopted and such a space will be secured.

PERU TO BE AT THE RUBBER EXPOSITION.

THE Peruvian Government has accepted the invitation to participate in the International Rubber Exhibition to be held September and October. A committee has been appointed to arrange for the preparation of the exhibits. It consists of Eduardo Higginson, Peruvian Consul General at New York; Wilfredo H. Schoff, Honorary Peruvian Consul at Philadelphia; O. Kehr-hahn, Peruvian Consul at Baltimore, and G. Alvarez.

ADDITIONAL MEMBERS OF THE EXPOSITION EUROPEAN COMMITTEE.

IN our January issue we gave a list of 76 names of men prominent in various departments of the rubber industry in foreign countries who have signified their willingness to serve on the European Honorary Advisory Committee of the Third International Rubber and Allied Trades Exposition, to be held in the Grand Central Palace, New York, from September 23 to October 3 next.

Below we give a list of 32 names of rubber men who have since accepted invitations to the membership of this committee:

- Algernon E. Aspinall, secretary, The West India Committee, London.
- G. L. Bailey, Aylesbury & Garland, Perak, F.M.S.
- B. Bakker, Bakker & Zoon, Ned. Caoutchouc en Gutta-Percha fabriek, Ridderkerk, Holland.
- M. Kelway Bamber, F.I.C., F.C.S., Government Analytical Chemist for Ceylon.
- Sir John E. Barlow, Bart., M. P., T. Barlow & Bros., London.
- C. E. S. Baxendale, Managing Director, Jugra Estate, Selangor, F.M.S.
- F. J. Branthwaite, late Conservator of Forests, Tenasserim Circle, Burma.
- Professor P. Carmody, F. I. C., F. C. S., Director of Agriculture, Trinidad.
- Leslie C. Coleman, M.A., Ph. D., officer in charge Department of Agriculture, Mysore.
- Count J. de Hemptinne, administrator of the Colonial Society, Ghent.
- E. de Wildeman, Jardin Botanique, Bruxelles.
- Oscar Erglebert, president of the Chamber of Rubber Manufactures at Liege.
- Frank Evans, Department of Agriculture, Port-of-Spain, Trinidad.
- John Gibson, manager, The Tremelbye (Selangor) Rubber Co., Limited.
- Henry H. Holland, Managing Director, United States Rubber Co., Ltd., London.
- George S. Hudson, manager, Errard Estate, St. Lucia, West Indies.
- W. H. Johnson, F. L. S., Director of Agriculture, Ibadan, Southern Nigeria.
- Monsieur Le Coispellier, president of the Committee of the Association of Rubber Planters of Indo-China.
- L. Lewton-Brain, Director of Agriculture, Kuala Lumpur, F. M. S.
- John Lockhart-Anderson, Boustead, Anderson & Co., Mincing Lane, London.
- H. S. J. Maas, Consul-General of the Netherlands in London.
- C. O. Macadam, Rosehaugh Tea and Rubber Co., Limited, Culloden, Neboda, Ceylon.
- W. F. de Bois Maclaren, London.
- F. Martin, F. C. S., chemist to the Woolwich Factory of the Western Electric Co., Limited, London.
- Hon. H. A. Alford Nicholls, M. D., C. M. G., M. L. C., chairman, Permanent Exhibition Committee of Dominica, British West Indies.
- H. Ormerod, managing editor "The Planters' Chronicle," Bangalore.
- Leon Osterrieth, director, Société de Cultures Nieuw-Tjisalak, Nieuw-Tjisalak Estate, Java.
- Paul Osterrieth, vice president Association des Planteurs de Caoutchouc, Anvers.
- Julius A. Polak, Paramaribo, Dutch Guiana.
- Edmund B. Prior, Golden Hope Rubber Estate, Klang, Federated Malay States.
- Henry N. Ridley, C. M. G., M.A., F. R. S., director, Royal Botanic Gardens, Singapore, Straits Settlements.
- Dr. P. Schidrowitz, F. C. S., rubber chemist, London.
- S. Seligmann, Continental Caoutchouc und Guttapercha Co., Hannover.
- A. W. Still, Managing Editor, "The Straits Times," Singapore.
- G. A. Talbot, Ceylon Tea Plantations Co., London.
- Dr. W. R. Tromp de Haas, director of the Government Rubber and Gutta-Percha Plantations, Buitenzorg, Java.
- The Duke of Ursel, Belgium, Commissioner-General for the Brussels Exhibition, 1910.
- J. J. W. Van Bennekom, Director, Nederlandsch-Indisch Rubber Bureau, Holland.
- W. Van der Velde, president de la Section des Caoutchouc à Anvers.

Leo Weinthal, Editor, "The African World," London.

Sadao Yamada, Editor-in-Chief the "Gomu Shimpō," Tokyo, Japan.

The American Committee has an extensive list and we hope to publish it in our next issue.

THE PHILIPPINES PREPARING FOR THE NEW YORK EXPOSITION.

A LIVELY interest is being felt in rubber planting circles all over the world, in the rubber exposition to be held in New York next September and October. As an illustration of this fact, we quote below part of an editorial which recently appeared in the "Manila Cable News," published in Manila, which shows the appreciation felt in that distant part of the world, of the opportunity which planters will have in the New York exposition, to show the progress they are making. The editorial is as follows:

NEW YORK RUBBER EXHIBITION.

We learn from London papers that a rubber exhibition will be held in New York in September, 1912, on the lines of the recent London rubber exposition. The "Rubber News" of Kuala Lumpur, Federated Malay States, has this to say: "America is, we know, a great buyer of crude rubber, and it, therefore, behooves us, in the Middle East, not to lag behind other rubber producing countries in getting ourselves properly advertised at the next year's show, and the best and most effective way of course to do so is to have an adequate representation, both in quantity and quality, of our rubber staff at the exhibition."

The Philippines are certainly more interested in having an adequate representation for our infant rubber industry than our young giant neighbor, and as they are already planning and getting things in shape to properly advertise themselves a year hence, it certainly behooves us to wake up in order to do ourselves justice.

It needs no argument to prove that a rubber exhibition in New York will attract those interested in rubber, and if these men see only Mexico, South America, Ceylon, Federated Malay States, Java, Sumatra, Hawaii, Samoa, New Guinea, etc., represented, and nothing from the Philippines, they will logically conclude that we have nothing. They are not mind readers.

It appears to us the time to begin for the exposition is now, by a campaign of rubber education and a study of what we have. An efficient man ought to begin to get a decent gutta percha collection, not of ordinary grade carelessly prepared for the market, but contract with the producers to prepare a good grade that will be fit to exhibit.

All the plantations could be swung into line. The Basilan Plantation Company would be able to furnish a reasonable quantity from their trees, which, though small, are bearing. The Mindoro Baco Rubber Company would help all they could. The Richmond Plantation in Camarines would be able to furnish data. The Abucay Rubber Plantation, although young, could furnish data. But all this requires looking after and stimulating and systematizing.

The Islands have the man to do this preparatory work in the person of A. W. Prautch. He proved his efficiency in the Singapore exposition, and in the tour he made for the Government advocating rubber. His writings to the public press of Manila have covered the whole ground of the rubber question. He has shown his enthusiasm and optimism by the fact that his propaganda was at his expense. So that in him the rubber question would receive the service of sympathy and intelligence.

If we let opportunities to properly advertise our rubber growing possibilities go by default we shall have no one to blame but ourselves. We have the soil, climate and a fair beginning has been made.

GOLD MEDALS FOR THE NEW YORK EXPOSITION.

At a special meeting of the Rubber Growers' Association, held lately at the London Chamber of Commerce, it was resolved to present to the New York Rubber Exposition, which opens in September next, a series of gold, silver and bronze medals for free competition open to all the rubber plantation countries in the world exhibiting at the Exposition. The condition of the competition is that at least 1 cwt. of rubber, to be a commercial, not an exhibition, sample, must be shown for each entry made, and planters are to have the privilege of making more than one entry if they wish. The competition is to be judged by seven of the leading rubber manufacturers of America.

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

THE rubber companies of Akron are commencing to take an active interest in the education of their employes. President F. A. Seiberling, of The Goodyear Tire & Rubber Co., says that foreign labor at the Goodyear plant will be compelled to acquire a certain knowledge of the English language, and of rules of government leading to citizenship papers. Laborers refusing to submit to these tests will be discharged. This education is offered in the evening schools of Akron. It is free, and the cost is paid by the city of Akron. At present there are eight teachers in the evening schools, who teach English, civics, and the common branches. If the rubber companies all took the stand which the Goodyear is taking at present, this number would at least be tripled next season.

Mr. Seiberling also says: "I consider it Akron's duty to give the foreign population high ideals of citizenship. It is Akron's fault that the police court is filled with men who are a menace to the city. We have kept aloof from the immigrants. We have centered in our own prosperity, but Akron is second to no city in the United States commercially. In 1865, 600 men were employed here; today we have a labor roll of 25,000, and we are far enough advanced materially to devote time to the common good."

At its annual stockholders' meeting, The Royal Rubber Co. decided to raise additional money to help carry on the business of the company. The following officers were elected: President, W. M. Blecker; vice-president, C. O. Henderson; secretary, J. A. Myers; treasurer, J. E. Whigham.

It is stated that Frank B. Theiss, secretary of The Miller Rubber Co., and a former banker, expects to build a fine home this summer on the northwest corner of Market street, opposite the homes of E. R. Held and S. J. Ritchie.

The American Rubber Co. began operations about the first of the month, with a working force of fifty men. The company will manufacture inner and outer tubes and repair stock. The following officers were re-elected: Adam Duncan, president; Gilbert C. Waltz, vice-president; F. Kryder, secretary; F. E. Rowe, assistant secretary and treasurer.

Nineteen agents of the Buick cars in Cleveland territory were guests on Tuesday, February 6, of the Buick Motor Co., at their plant in Flint, Mich. Those who viewed the plant for the first time were surprised at its magnitude. There are eighteen factory buildings which cover more than 56 acres of ground and have a floor space of more than 2,500,000 square feet.

The motor building is one of the largest machine shops in the world, and covers $6\frac{1}{2}$ acres of ground. In it, 1,300 men are employed, with a pay roll of \$32,000.* In the testing room 100 motors are running at one time. The large assembling room proved of interest, as did the track at the rear of the building which is used for testing. The other machine shops, forge shop, foundries, sheet metal and radiator factories were also visited.

As Akron supplies much of the rubber equipment, it takes a lively interest in the aviation training school that Glenn Curtiss has started on North Island at San Diego, California. The training grounds are located on North Island in San Diego harbor, and comprise many acres of level sand unobstructed by trees or buildings. The island is entirely private and within a few minutes of San Diego. Strong winds are absent, so that flying can be indulged in throughout the day.

San Diego harbor is the headquarters for manœuvres of U. S. torpedo and sub-marine fleets of the Pacific, and experi-

ments are carried on in connection with the flights. The island is provided with hangars, workshops and a club house, and the school has its own launch connecting it with San Diego. The methods of training commence with the most simple principles of aviation, and as the pupil masters the simple elements, he is trained in the more difficult. Special balancing machines have been designed, which enable the student to obtain a complete knowledge of the controls and the art of balancing, before attempting actual flights. The runs on the ground teach the use of the steering rudder. The balance through instinct is then practiced by running the aeroplane with just sufficient power to keep two of its three wheels off the ground. The art of landing is taught by many short straightaway flights, after which right and left turns are practiced, and then the figure eight. The Curtiss school has many world-famed graduates.

Akron and The Diamond Rubber Co. are interested in the Federal investigation of the dynamiting of the structural iron which was to be placed in building No. 17 of The Diamond Rubber Co., and which was destroyed by an explosion which occurred July 4, 1910, at 10:30 P. M. at the Burger Iron Works in this city. It is stated that the jury has returned Akron indictments and that some men in northern Ohio will be implicated in these arrests. This explosion delayed the work on one of the large buildings for The Diamond Rubber Co. for some time. Windows in buildings for blocks around were demolished.

It is presumed that the explosive was brought from Cleveland to Akron in a suitcase and carried along the B. & O. and Erie tracks from the station to The Burger Iron Co. plant. The structural iron beams which were destroyed were stacked in two piles with a short space between and a fuse about 25 feet in length was carried some distance across the tracks which led up into the plant. The fuse was then lighted and in a short time reached the suitcase. The explosion twisted many of the beams out of shape and tore many apart at the ends. Part of the suitcase and portions of the fuse were found by police authorities. Many bottles were discovered, which led to the belief that nitroglycerin was used. The explosion was planned so that the perpetrators could easily escape. The McManigal confession, it is claimed, has cleared the whole plot.

The Cleveland Auto Show, which was held in Central Armory February 17-24, was highly successful. Many cars were shown and many high-grade cars were on exhibition. The decorations of the Armory cost over \$10,000, and the exhibitors who were in attendance at the other shows about the country considered it an exceptional success. The Armory presented a beautiful sight. Floor space was much in demand. The Cleveland Auto Club gave a willing hand to the parties who had proposed an exhibition hall in Cleveland which would be used the year around for various purposes and give sufficient space for exhibitors at the annual automobile show.

J. F. Singleton, formerly advertising manager of The Firestone Tire & Rubber Co., has resigned his position and associated himself with The Taylor-Critchfield Advertising Agency, of Chicago, Illinois. His successor will be appointed later.

The Goodyear Tire & Rubber Co. had a fire at their Houston, Texas, branch office February 18. Much of their stock was destroyed and the branch was compelled to suspend business until a new stock was secured from the nearest branches and the factory at Akron.

The Goodyear Tire & Rubber Co. has a special department given to aviation supplies, and was among the first of the American rubber manufacturers to reckon with the aeroplane as a coming means of transportation and to make preparations for its

arrival. This company makes a special aeroplane tire, which is similar to, but flatter than its cousin, the motorcycle tire. It is made like a small automobile tire, instead as a development of the bicycle tire. The aeroplane tires must take terrific strains at times and must be made so that wrenches will not loosen them from the rims. The lives of the aviators are quite likely to depend on the sturdiness of the tires on their wheels. These details are being carefully studied out by the various tire manufacturers, upon whom the aviators depend for their safety in this line.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

A MOST attractive and educational window display graces the central show window of the B. F. Goodrich Co. warehouses on Boylston street in this city. It is a representation, in miniature, of a South American jungle, and shows the gathering of the latex and the smoking process, as done by the native Indians. At the front is shown the trunk of a real tree, with hering-bone tapping, the sap running down to a cup at the foot. Several tree trunks are shown, and the whole surface is covered with artificial grass, shrubs and plants. Excellent human figures, about two feet high, are seen collecting sap from the cups on the trees. Further along is to be seen an Indian smoking a newly-formed biscuit, the fire under the smoker being simulated by an electric light under red glass. The whole forms a picture which has attracted the attention of every passer-by (and these are numbered by thousands), and the school teachers have contracted the habit of bringing groups of children to show them the way caoutchouc is obtained and manipulated in preparing it for market. Besides this central scenic display there are samples, each one labeled, of different kinds of rubber—crude, washed and Ceylon crepe, specimens of fraudulent and adulterated rubber—also tapping tools, pans, a smoking cone, seeds and various South American Indian curiosities. Manager Limric is receiving many commendations on the attractiveness of the display.

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And speaking of show windows, The Riker-Jaynes drug store on Summer street recently had an effective window display which was built up entirely of rubber goods. All sorts of druggists' specialties of soft and hard rubber were included, many of them being labeled and price marked. Prominent among these specialties were various kinds of hot-water bags and fountain syringes, and backing up the whole collection was a hot-water bag of white rubber, perfect in proportion and large enough to hold a 250-pound man. Prominent at various points in the window were framed photographs showing scenes in the rubber forests of South America, as well as the processes of tapping, collecting the latex, smoking, shipping, etc. The window was attractive and instructive, and was constantly surrounded by a curious crowd.

Some of the manufacturers of rubber heels undoubtedly have an understanding regarding the prices at which their goods shall be sold. The schedule quotes certain prices per dozen, gross, and larger quantities, and they have been using their best endeavors to induce their principal customers—the shoe findings dealers—to stick to that schedule. They have not always succeeded in preventing competitive price cutting, though it looks as if they had considerable difficulty in locating the offending dealers. The representatives of these manufacturers recently met in this city and conferred on this subject, endeavoring to formulate some plan to protect their customers from cut-throat competition. It is not understood that a solution of the problem has been reached, but yet further efforts in this direction may be expected. If you find that the next rubber heels you buy have a number on them, you may make up your mind that these manufacturers have decided to adopt the scheme now used by the kodak people or the watch people to keep track of their goods, and to secure

such evidence as they can of the way some of their product, sold under a positive understanding regarding fixed prices, got into the hands of certain findings dealers who cut prices.

* * *

If you want to know anything about the Cuban metropolis, or the Panama Canal, ask Francis H. Appleton. At the time of present writing, accompanied by Mrs. Appleton, he is on a trip to the West Indies and Panama, and will probably be back again to business about the time this letter is being read. Mr. Appleton is an experienced traveler and a keen observer, and he will probably return with a big collection of facts and experiences.

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The lure of the tropics is being felt while the thermometer hovers around zero, and hits it above and below with alarming regularity and frequency. A. N. Mayo, of the Fisk Rubber Co., Chicopee Falls, sailed from New York on the 24th for a similar trip to that mentioned above. Mrs. Mayo accompanies him.

* * *

Either last summer was a very dry one, or next summer is expected to be, if sales of garden hose are any criterion. Dealers and retailers seem to be sending unusually large orders, which can only be explained by one or the other of these suppositions. This is the busy season for manufacturers of garden hose, and shipments average very large at this time, but the general report is that the month just closed figures away above the average in this particular.

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The automobile tire business is lively in all the factories producing this class of goods. One factory devoted to this industry shipped out over \$600,000 worth of tires during the month of January, and may equal this record in February, though the month is a shorter one.

* * *

E. L. Phipps, who is known to a large number of readers of THE INDIA RUBBER WORLD as a champion ball twirler who participates in every baseball game held at the outings of the Rubber Club of America, and whose more serious vocation is selling rubber boots and shoes for the United States Rubber Co., had a narrow escape the middle of last month. He was on his regular selling trip, and was riding in a Pullman car on the Pennsylvania Railroad, when that car, with several others, left the track and rolled down a high embankment. When he came to his senses he found the car lying on its side. He counted his arms and legs and felt other portions of his anatomy, and climbed out through a window. After taking an inventory of his aches, pains and contusions, he concluded he could be of some use to his fellow passengers, so he proceeded to help rescue them. But while not severely injured, he found himself so well shaken up and considerably bruised, and the shock on his nerves sufficient to require him to take a rest. So he returned home for a few days before continuing his trip.

* * *

The recent meeting of the Rubber Club of America has awakened much interest in the trade, and as a consequence there have been large accessions of members. Secretary Balderston is receiving a dozen or more applications a week, and within a month more than fifty men connected with the rubber industry have become members. President F. C. Hood is following up his suggestions for broadening the influence of the club by personal work and taking measures for increasing the membership, making it a national, rather than a sectional body, and investigating the possibilities of bringing about a standardization of crude rubber; while planning other ways and purposes which will make it more and more influential and beneficial to the trade.

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Some of the older members of the trade will remember the annual rubber auctions which were held for many years during the last quarter of last century. Thousands of cases of rubber

boots and shoes, of many brands and several qualities, were shipped to Boston, where Johnson, Moody & Co. hired a vacant warehouse, ranged samples in case lots in convenient aisles for inspection of bidders, and where Fred Nazro, the lightning calculator and cyclone auctioneer, hustled off the lots at a speed which almost took one's breath away. These people will remember the genial, soldier-like Mr. Moody of this firm, one of the best-loved men in the trade. Luther R. Moody passed away almost without warning February 12. He had for some time been troubled with failing eyesight, which had reached a point where he could not recognize friends on the street; but he was still able to get about unassisted. He had made an appointment with Fred Nazro to eat dinner with him at Young's Hotel on the fortieth anniversary of their joining in business, but on that day he was buried. He had a very wide circle of strong personal friends.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

CHICAGO tire men never before gathered such a harvest as that reaped at the automobile show. Never were there so many representatives of the tire branch of the rubber industry in the city at one time, as during the two weeks that the show lasted. During the first week the gallery of the Coliseum was devoted to exhibits of pneumatic and solid tires for pleasure vehicles, while the last week was given over to the exhibition of the heavy, solid truck tires.

Orders are still rolling in as a result and the jobbers are working overtime to rush shipments.

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The gathering of officials of the United States Tire Co. was one of the largest. Among those who attended the show were O. S. Tweedy, manager of the eastern sales district; H. H. Severance, of Detroit; Charles Marshall, of Minneapolis; J. A. Weise, of Los Angeles; George C. Hubbs, of New York, advertising director; and Harry Davis, of New York, publicity manager. Practically all of the salesmen of the central district, headquarters of which are in Chicago, attended daily conferences with A. I. Philp, central district manager, at which plans were laid for the coming season.

* * *

One of the interested visitors at the show was Frank A. Seiberling, president of the Goodyear Tire and Rubber Co., Akron, Ohio. At a banquet at the Congress Hotel, at which all of the Goodyear branch managers and officers were present, Mr. Seiberling declared that Chicago's exposition showed conclusively that the company would have the biggest year in its history during the coming season, and that the Akron plant would be forced to utilize every possible moment in filling orders already assured.

H. B. Hamlin, in charge of the motor truck tire department of the Goodyear company, and S. A. Falor, head of the motorcycle tire division of the same company, also attended the show.

* * *

Visitors to the show were surprised at the large sizes of pneumatic tires shown by the Fisk Rubber Co., pioneers in the field of interchangeable tires. Among the splendid examples exhibited were one 5 x 43 tire and another 6 x 40.

* * *

In order to place before car owners the non-skid feature of their tires in a practical way, the Republic Rubber Co. presented each motorist with a miniature Staggard tread tire. There was always a crush to be found around booths 30 and 31 of automobilists seeking to obtain one of the Republic's unique little souvenirs. The little tires—exact counterparts of the company's Staggard tread tires—showed just how the heavy solid rubber studs are set along the tread of the tires and how they are "staggered" to prevent skidding.

The company's exhibit was in charge of John H. Kelly, former

Chicago manager and now manager of tire sales, with headquarters at Youngstown, Ohio. Mr. Kelly was warmly welcomed back to Chicago by his host of friends on "automobile row" and is still in the city with his hands full of "aftermath" of the show in the shape of fat orders.

Mr. Kelly has been succeeded as Chicago manager by John W. Maguire, who has been with the Republic company nearly seven years. He formerly traveled for the company, making his headquarters in Youngstown.

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With the establishment of a branch office of the Firestone Tire and Rubber Co., in Minneapolis, shortly after the first of the year, George Martin, formerly in charge of the St. Louis agency, was placed in charge of the new agency. J. P. Patterson was transferred from the Chicago branch and placed in charge of the St. Louis agency. He was succeeded by J. J. Hegeman, credit man.

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Paul E. Bertsch, general manager of the Motz Tire and Rubber Co., was one of the visitors to the show who expressed himself as greatly surprised at the large number of dealers in attendance.

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"Nothing pleases a tire manufacturer quite so much to have a set of his tires give a mileage return far greater than the assurance embodied in his guarantee," said A. I. Philp, of the United States Tire Co., recently. "And such results also appeal to car owners. For this reason the establishment of a co-operative relationship between the manufacturer and consumer is advantageous to both."

* * *

Owing to a sudden change in the plans of the newly formed Stearns Rubber Co., the spacious quarters occupied by the company at West Jackson boulevard and South Market street have been given up, and Mr. E. G. Stearns, president of the company, has removed to the Fort Dearborn building.

* * *

George M. Munsa, who covers the entire territory west of the Mississippi river for the Empire Rubber Manufacturing Co., has just returned from a trip to the coast and reports conditions extraordinary.

"Nothing but prosperity is in store for the rubber trade in the west during the coming season as far as I can see," he said. "I visited all of the large cities and conditions are great. One jobber out in Kansas told the whole story in a nut shell when he said: 'Even if we shouldn't have another rain before July 1, we will beat all records of sales for former years.'"

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

AN effort is being made to reorganize the Consumers' Rubber Co., of Bristol, which went into the hands of a receiver as a result of temporary financial difficulties during the latter part of last December. The plan is to be carried out by two lawyers, Percy W. Gardner and J. F. Dunbar, the latter of whom represents the George A. Alden Co., of Boston, and the New York Commercial Co.

The plan was outlined several weeks ago in a circular letter sent to the stockholders, in which it was stated that a sale of the assets in bankruptcy proceedings would hardly bring 25 per cent. of the liabilities. From this would have to be deducted the expenses of receivership. Many of the stockholders have already given the lawyers the power of attorney to carry out the deal.

Briefly, the plan consists of an exchange of the stock of the Consumers' Rubber Company for preferred stock in a financially sound concern—not connected with the United States Rubber Co.—and not a competitor of the Consumers' Company. The name of this company has not been announced, the statement

being sold, that it was the only asset left to annex a rubber shoe department.

The desirability of the scheme was impressed upon the stockholders by pointing out that the preferred stock would be six per cent. cumulative after the first year and that, being preferred, it would get dividends before the common stock of the company, and that this would furnish an incentive for a rapid retirement of the Consumers' stock. It was claimed by the attorneys that the new company would probably retire the mortgage, so that the lien would be of real value and would bring a return of 100 cents on the dollar. It is proposed, if the plan is accepted, to retain Terrence McCarty as manufacturing executive.

A series of complicated court proceedings have followed in the wake of the attempted reorganization. The first was a suit by the Atlantic National Bank, of which Percy W. Gardner is a director, to recover on two notes, one for \$2,500 and the other for \$5,000, the first payable to the Consumers' Rubber Co. three months after date, the first note being dated August 30 and the second August 27, 1911.

The second suit came early in February. This time the Atlantic National Bank filed an action against the Industrial Trust Co. in the Superior Court seeking to recover \$880.51 and \$1,972.14, respectively, on two notes, which the bank says it paid by mistake, not knowing, at the time, of the receivership appointment.

In the meantime Isaac Varney & Sons' Co., of Fall River, Massachusetts, attached Terrence McCarty's property in Bristol for \$2,000 in a suit, and almost on the same day the General Fire Extinguisher Co., of Providence, gave notice in the town clerk's office at Bristol that it had a lien for \$817 on Mr. McCarty's belongings.

To still further complicate matters the William L. Gough Co. a New Jersey corporation with offices in New York City, secured a writ of replevin from the United States District Court here, the first in 20 years from that tribunal, in an effort to secure payment on 4,388 pounds of crude rubber and seven cases, or 2,286 pounds of Palenberg gum, the total value of which was placed at \$4,238.

The writ was returnable on March 1, on which date Receiver R. S. Emerson was cited to appear at the United States District Court.

Wire to supply the insulating department is to be made in that portion of the National India Rubber Co.'s plant made vacant by the recent transfer of the druggists' sundries, mechanical fabric and hose departments to a Cleveland mill. It is expected that the necessary furnaces and other apparatus will be ready for the commencement of operation about April 1.

Orders were given on February 2 for locating the new department in one corner of the factory. As this will do away with the necessity of purchasing wire from other concerns, it is expected that this feature of the industry will be greatly developed later.

The work of dismantling the departments which were sold to Cleveland interests began on January 25 and by the latter part of February, 60 carloads of machinery had been shipped.

Bristol is a small town, and it was feared among the inhabitants that the removal of the departments would work hardship. This did not develop, however, as many of the 600 hands affected were notified that they could obtain work in the shoe departments, if they should apply. They did, and the rubber shoe output was increased soon afterwards from 750 cases to 1,000 daily, divided among the departments as follows: tennis shoes, 150; gum shoes, 50; arctics, 50. A number of clerks and employes followed the departments to Cleveland. The departments moved had been in operation since 1868.

A decided improvement in the rubber trade in Rhode Island has followed the depression which was felt keenly toward the

close of 1911 and the beginning of the new year. This is particularly noticeable at the plants of the Woonsocket Rubber Co. and the National India Rubber Co., the latter at Bristol, both of which are now running full time.

After a shut-down of two weeks, which ended February 12, the Alice and Millville plants of the Woonsocket Rubber Co., resumed, the former with 1,400 and the latter with 800 employes, and since that time they have been running with full forces. It was announced at the time of the re-opening that the prospects for a continuance of full time operations are excellent, and that the only shut-down expected will be a short one for the annual stock taking.

By direction of Colonel Samuel P. Colt, president of the United States Rubber Co., George Schlosser, who has been general superintendent of the Woonsocket Rubber Co. for several years, will, in the future, have charge of the plant of L. Candee & Co., New Haven, Connecticut, in addition. A more detailed account of Mr. Schlosser's career will be found in the "Personal" column in this issue.

Incidentally it may be mentioned that in addition to being a successful mill superintendent, he is president of the Woonsocket Y. M. C. A. and is a vestryman at St. James Episcopal Church, Woonsocket.

William I. Resnikoff, foreman of the rubber department at the Phillips Insulated Wire Co.'s plant, Pawtucket, for eight years, resigned recently to take charge of a rubber garment concern in Brooklyn, New York. A number of his friends and fellow-workers gathered at his home for a farewell party and presented him with several articles.

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The B. & B. Fibre Corporation is the name of a company chartered at the State House, Providence, on February 16 for the purpose of engaging in the business of manufacturing, buying and selling rubber, fibre, rope, lining, oil rope, or any of their by-products. The new company is to be capitalized at \$100,000. The incorporators are Frederick Burnham, of Warwick; Gustav Braunlich and Willis H. Richardson, of Providence.

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The Revere Rubber Co., the Providence plant of the United States Tire Co., secured 28,347 square feet of land on the west side of Eagle street, south of the corner of Valley street near its plant during the early part of February. It is understood that the land is to be held to provide for further expansion of the plant.

* * *

At a meeting of the board of directors of the Narragansett Electric Lighting Co., held February 6, Arthur L. Kelley, who is head of the Mechanical Fabric Co., was re-elected president, and Colonel Samuel P. Colt was again chosen to membership on the executive committee.

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On the last Sunday in January a new chantry and cloister to St. Michael's Episcopal Church, Bristol, was dedicated as a memorial to Samuel P. Colt, Jr., who died a number of years ago. It was presented by Colonel Colt. The structure is made of Portland stone and is of Gothic design similar to the church. The church was founded in 1718 under the jurisdiction of the See of London.

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Mrs. Mary Ann Follett, 94 years old, widow of James Follett and mother of Henry A. Follett, paymaster of the Alice and Millville Mills of the Woonsocket Rubber Co., died at the home of her son, 236 South Main street, Woonsocket, February 2. Mrs. Follett was born June 11, 1818, at North Stonington, Connecticut. She had been a resident of Woonsocket for more than 70 years, and was as well known as was her son.

THE RUBBER TRADE IN SAN FRANCISCO.

By a Resident Correspondent.

IF it does not begin to rain pretty shortly, this season will develop into one of those dry ones which were so much feared in the early days. So far there has been only about half of the normal rainfall, and if there is the same shortage in the future, there will soon be much complaint among the footwear dealers. It has been a long time since there has been a genuine dry year in California, although in early days they were quite common. Extensive cultivation, however, has done away with the vast vacant tracts of land which formerly became barren wastes during droughts and this same growth of verdure preserves the moisture, so that droughts are not so severe. Moreover the gigantic irrigating systems supply water to such an extent that a dry year would hardly be felt.

The Pacific Coast Rubber Manufacturers' Association has issued the following letter: "San Francisco, February 10, 1912. To Manufacturers and Jobbers of Mechanical Rubber Goods and Druggists Sundries: This is to advise you that the City of San Francisco is desirous of having before them a set of specifications covering various mechanical rubber goods, druggists' rubber sundries, and that those specifications may be so worded as not to exclude any of the manufacturers or jobbers from bidding on the same. These specifications are to be placed before the Purchasing Department of the Board of Supervisors, and it is desired by them that all manufacturers agree upon a set of specifications that will meet the requirements of the city. This applies to all lines of mechanical rubber goods, druggists' rubber sundries, etc. To provide for this contingency a meeting will be called at the Palace Hotel at 12:30 o'clock Tuesday, February 13, 1912, and you are invited to attend and join in the discussion as to what will best serve the city's interests. Joseph V. Selby, President Pacific Coast Rubber Manufacturers' Association." A meeting was held on the 13th and a committee selected to suggest a line of tests, and this will undoubtedly take some little time. The merchants are all pleased at this unusual attitude on the part of the present progressive administration. It indicates that the city officials are desirous of closing all possible avenues of graft. They admit that men in the rubber business know more about it than political experts, and they ask the rubber interests to suggest a line of practical tests that will enable the city to select a line of suitable goods for the various departments intelligently.

The trade has learned with regret of the recent death of Mr. Huff, bookkeeper for the Gutta Percha and Rubber Manufacturing Co., of this city. Mr. Huff had been bookkeeper with this firm for a period of nearly 50 years, and he was well and favorably known to the entire trade.

Work on the new buildings at the factory of the American Rubber Manufacturing Co. is progressing favorably. The superintendent at the factory, Mr. Oliver, recently resigned from that position.

The Gorham-Revere Rubber Co. has just completed the second month of marketing the new Revere tire and has met with marked success. So far the tire department has not received a single complaint. The advertising, done by a well-known artgraver of New York, has made a decided hit. Mr. Brady, of this company, reports that business is improving steadily, and that reports from the sawmill counties are now much more favorable than they have been for a year or more. This company held a salesmen's convention at Seattle, Washington, February 23 and 24. The salesmen from the Portland, Seattle, Tacoma and Spokane branches were present. Each man

was presented with a very handsome stick pin as a memento of the banquet which was held at the Ranier Club. The business meetings were held in the Washington Hotel. This convention, like the one held in January in San Francisco, was a pronounced success.

E. H. Parrish, of the Gorham-Revere Rubber Co., left San Francisco in February for a tour of the Orient, taking in China, Corea, Northeastern Russia, Japan and possibly Australia.

The Bowers Rubber Works report that January was the best month for business in profit and amount done, that they ever had in the history of the company.

Johnson & Dunnagan, auto tire dealers in Portland, Oregon, have sold out their mechanical department.

The Diamond Rubber Co. is still making further changes and improvements with its branches on this coast, notwithstanding that the company has put its seven branches into full working order in the coast cities within the past few years. The branch at Los Angeles is to have a fine new home in the new building which is nearly completed at 11th and Olive streets. This will be one of the finest of the stores on the coast, and the plans are generally along the line of the rest of the branch stores.

A company known as "The National Rubber Substitute Co.," has been incorporated in San Francisco.

It is reported that the Taft Vulcanizing Works, at Taft, California, a partnership concern, has recently dissolved.

The National Pacific Rubber Co., which proposes to manufacture crude rubber, fertilizer and iodine potash from sea kelp, has leased the buildings and holdings of the San Pedro Canning Co., at Terminal, California, for 15 years. Machinery for their purposes, will be installed at an estimated cost of \$75,000.

A. S. Rhoades, manager of the specifications department of the Diamond Rubber Co., and L. G. Lehouse, city salesman for the company, are both leaving for Manila, Philippine Islands, where they will take important positions with the Bachrach Garage and Livery Co., of that city.

G. E. Robert, a rubber merchant from New Zealand, has been a recent visitor in San Francisco.

Phil H. Lyon, of Los Angeles, manager of the Southern branch of Chanslor and Lyon, and W. A. Avery, manager of the Seattle branch, are in San Francisco for a conference with Henry D. McCoy, manager of the local branch.

ASBESTOS SHOE SOLES.

THIS paragraph has been going 'round the newspapers:

"Rubber and asbestos mixed has been utilized successfully for the manufacture of soles for outing shoes. The material has the appearance of a thick, close felt, without odor, and without any discomfort to the feet. These will be extensively introduced next season."

Inquiry among the manufacturers of rubber shoes—and especially of outing shoes—fails to disclose anyone in this country who has embarked upon the manufacture of shoes with asbestos soles, although something of this sort has been tried abroad. On the face of it, it is not especially obvious why outing shoes should require asbestos soles as, ordinarily, the conditions under which they are worn—for instance, on tennis courts and golf fields—are not such as to endanger the soles of the wearer's feet from excessive heat. Possibly they might be useful for politicians to wear when invading the enemy's country in a hot campaign.

THE RUBBER TRADE IN TRENTON.

By a Resident Correspondent.

THE local factories are in operation full-handed and many of the concerns are working in day and night shifts to keep up with orders. The Thermoid, Home, Empire, Hamilton, United and Globe, and Joseph Stokes rubber companies are working up to capacity, and officers of these companies report that the outlook is particularly good for a continuation of the prosperity in so far as their business is concerned.

The United and Globe Rubber Manufacturing Co.'s are doing a large business in the manufacture and sale of hose couplings for air brakes, supplying many of the railroads of this country, and many in foreign countries. The local plants manufacturing automobile tires say business in this branch of the trade is fully up to expectations.

Fire destroyed a section of the plant of the Empire Rubber Co. recently. The section destroyed was used for storage purposes and contained a large quantity of benzine, cement, oil and machines used in coating rubber. It is the belief of President Murray and Secretary Cornell that the fire was caused by friction from one of the machines, which ignited the oil in one of the upper floors. Luckily the fire occurred during the day. This, together with the fact that the burned structure was situated apart from the main building, enabled the firemen to prevent the blaze from reaching the section where the more valuable rubber was stored.

Wholesale thefts of rubber by employes of the Ajax-Grieb Rubber Co. were brought to light by the arrest of Fred Volk, teamster, and Jacob Sweetlove, factory hand. The company missed so many automobile inner tire tubes that they invoked the aid of the authorities, with the result that detectives were put to work on the case. After several weeks' systematic search they arrested the two employes.

Sweetlove confessed to the authorities that the thefts had been going on for many months. The rubber was carted off by the teamsters and deposited with a "Fence" and later disposed of to junk dealers, who sold it out of town.

L. P. Kuhl, southern representative of the Thermoid Rubber Co., and Miss Susan Henry, employed by the same concern, were married last month.

The United and Globe Rubber Co. and the Empire Rubber Co. recently furnished the city of Trenton fire department with 5,000 feet of fire hose. The hose was inspected and tested during the making by the Underwriters' Laboratories, of New York City, which were paid at the rate of one cent a foot by the city. The hose more than came up to the specifications.

THE PROPOSED CHEMICAL SCHEDULE.

THE new chemical schedule before Congress includes various materials used in rubber manufacturing, a synopsis of which appeared in THE INDIA RUBBER WORLD for July, 1911 (p. 380), in connection with details of imports of materials used in rubber manufacture, during the fiscal years 1909 and 1910. A similar report is now being compiled for the fiscal year 1911.

The new rates, being as yet only proposed, are of course subject to discussion, but even in that condition they are of interest and include the following changes:

Sulphuric acid, now paying $\frac{1}{4}$ cent per pound (about 8.63 per cent.), would come in free.

Carbonate of ammonia, now paying $1\frac{1}{2}$ cents per pound (about 27.73 per cent.), would pay half that rate.

Acetone, at present unspecified, would pay 1 cent per pound.

Ground chalk, now paying 1 cent per pound (about 39.37 per cent.), would pay 10 per cent.

Balsams, now coming in free, would pay 10 per cent. when crude, and 15 per cent. when in advanced condition.

Chloride of calcium, crude, now paying 25 per cent., would come in free.

Benzol and certain other coal-tar products, now coming in free, would pay 5 per cent.

Crude glycerine would continue to pay 1 cent per pound (about 11.29 per cent.); while refined glycerine, now paying 3 cents per pound (about 10.63 per cent.), would only pay 2 cents per pound (about 7 per cent.).

Gums, which have hitherto been free, would be dutiable. Gum copal would pay $\frac{1}{2}$ cent per pound, while gum Kauri and Damar would pay 1 cent per pound.

Calcined magnesia, now paying 7 cents per pound (about 43.27 per cent.), would pay one-half that rate.

Castor oil, now paying 35 cents per gallon (about 34.94 per cent.), would pay 20 cents per gallon (about 20 per cent.).

Linseed oil, now paying 15 cents per gallon (about 27.11 per cent.), would pay 13 cents per gallon (about 22 per cent.).

Palm oil, now coming in free, would pay $\frac{1}{4}$ cent per pound.

Baryta, unmanufactured, now paying \$1.50 per ton (about 59.11 per cent.), would pay 15 per cent., while in manufactured condition (now paying \$5.25 per ton, or about 52.11 per cent.), it would pay 20 per cent. Minimum rates would be respectively 40 cents and \$1.30 per ton.

Black pigments, now paying 25 per cent., would only pay 15 per cent.

Prussian blue, now paying 8 cents per pound (about 44.23 per cent.), would pay 20 per cent., but not less than 3 cents per pound.

Ultramarine, now paying 3 cents per pound (about 32.22 per cent.), would pay 20 per cent., but not less than 2 cents per pound.

Oxide of cobalt, now paying 25 cents per pound (about 24.14 per cent.), would pay 10 cents per pound (about 9 $\frac{1}{2}$ per cent.).

Chrome green, now paying 4 $\frac{3}{8}$ cents per pound (about 25.98 per cent.), would pay 20 per cent., but not less than 3 cents per pound.

Litharge, now paying 2 $\frac{1}{2}$ cents per pound (about 53.32 per cent.), would pay 25 per cent., but not less than 1 cent per pound.

Venetian red, now paying 30 per cent., would pay 10 per cent. or 20 per cent., according to stage of advancement.

Whiting and Paris white, dry, now paying $\frac{1}{4}$ cent per pound (about 43.98 per cent.), would pay $\frac{1}{10}$ cent per pound (about 17 $\frac{1}{2}$ per cent.).

Dry oxide of zinc, now paying 1 cent per pound (about 17.47 per cent.), would pay 15 per cent., but not less than 6/10 cent per pound. Similar rates would apply to dry white sulphide of zinc, lithophone, etc.

Bichromate of potash, now paying 2 $\frac{1}{4}$ cents per pound (about 45.86 per cent.), would pay 1 cent per pound (about 20 per cent.).

Caustic potash, unrefined, now free, is apparently made dutiable at the rate of 6/10 cent per pound.

Caustic soda, now paying $\frac{1}{2}$ cent per pound (about 15.39 per cent.), would pay only half that rate.

Sulphur in any form would be in the free list.

Talc, now paying 35 per cent. in ground, powdered or prepared form, would only pay 15 per cent.

Various materials used in rubber manufacture coming under other schedules, the chemical schedule does not cover the whole of them. While the changes proposed are as yet to be subjected to much debate, and cannot be regarded as certainties, they will serve to indicate points for the consideration of rubber manufacturers, thus inviting criticism by those whose interests would be affected by their adoption. Like all legislation, the wording of the new schedule is open to various constructions. The rates, as quoted, are therefore more or less subject to official interpretation.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

THE TRADING POSITION.

THE raw rubber market still keeps in a favorable state for trade in its ups and downs of a few pence per pound, and if this state of affairs continues we are not likely to have any repetition of such trading losses as have been referred to previously, as having occurred during last year in both large and small factories. It is rarely possible for firms when making selling contracts for a twelve-month supply of goods to cover their raw rubber requirements for more than three months ahead; so it will be at once recognized how disastrous a rise of shillings per pound may prove in the case of such contracts. There has been a good deal of speculation as to how those firms which do not publish their accounts got on during late years, but there is little likelihood of the inquisitive obtaining enlightenment on the point. Some idea may certainly be gained where changes of personnel have occurred, it being common to blame foremen and managers in the case of bad results, rather than for directors to indulge in recrimination among themselves. I don't know whether the loss shown by the Peter Union Tire Co. is to be attributed to any one specially adverse factor, but they have certainly been prominently identified with the supply of motor-bus tires in London under the mileage contract system. Other tire firms tell me that at present cut prices, this has become a rather hazardous business, necessitating a considerable floating capital. Where the profits are as small as they are now, there is a good chance of their vanishing in a business like this, where so much depends on the honesty and carefulness of those whose actions it is impossible to keep under continual supervision. With regard to the publication of large dividends, it is said that although this may give a correct impression of prosperity due to good management, it has its drawbacks as leading to continual demands from customers for a reduction in prices. "You are making big profits," they say, "and are, therefore, easily able to reduce your prices."

Of course shareholders have their own way of looking at the matter, but a manufacturer tells me that it is better to pay only moderate dividends up to 10 per cent. and to put excess profits into a reserve fund. The Leyland & Birmingham declared their usual 5 per cent. interim dividend at the end of the year, but the actual result of the last six months' trading will not transpire until the end of their financial year, which is now at the end of June. Apropos of what I have said above with regard to tire contracts, I may add that the London General Omnibus Co. has recently placed orders for 500 sets of tires, of which I understand 300 have gone to the Dunlop Co. The fact that one important tire firm declined to bid supports what I have said as to the somewhat hazardous nature of the business today.

Mr. Arthur Mallaby, who was for some time connected with the Non-Suction Rubber Co., and later with the Haycliffe Rubber Co., both of Bradford, Yorkshire, has severed his connection with the latter firm and has started rubber works at

NEW WORKS.

Lower Mills, Brimscombe, Gloucestershire, under the style of Mallaby & Co. This is a new industry for this rural district, though a precedent for invading an agricultural community is to be found in the cases of the Avon Rubber Co., the Sirdar Rubber Co., Wallington & Weston and Spencer Moulton & Co., whose various works are about thirty miles away from Brimscombe. The availability, in many cases, of water power, cheap labor and trifling rent and rates are important advantages accruing to those who leave the large manufacturing centres to penetrate into the country, and the latest recruit is certainly well

placed as regards the above advantages. There are two water wheels at Lower Mills generating 40 horsepower, in addition to a large boiler and 90 horsepower steam engine. The business to be done will be largely concerned with all kinds of tubing, cords, hose, piping, etc., though the manufacture of general mechanical rubber goods will be carried on. A rubber heel department is also to be installed. One important point about these rural rubber works is the improved conditions under which the operatives live compared with their brethren in the towns, and when it is said that labor is cheap it must be remembered that so are house rent and agricultural produce.

THE heavy snowfall in the northern districts in the middle of January led to the usual sudden demand for goloshes, a demand which effected a good clearance of

FOOTWEAR.

stocks in Manchester, Liverpool and other large towns. The increasing use of salt to liquify the snow in our streets has had a good deal to do with the rise of the golosh into favor. Where ten years ago one only saw one or two pairs of goloshes or snow boots in the cloak rooms of the large clubs, now one sees them in dozens, a sufficient testimony to the revulsion of feeling. The announcement of "Boston" rubbers is now quite general in boot shops up and down the country. As long, however, as goloshes are only generally worn in times of snowfall, I do not see how the business done can be a very large one, because snow storms are not at all frequent, and a pair of goloshes will last a good many years, if only occasionally worn. With regard to the leather boot trade which some years ago was seriously threatened by imports of American machine-made boots, things have righted themselves by the Leicester and Northampton firms importing American machinery and working on American lines, a prominent feature being the elimination of hand labor. When I say things have righted themselves, I refer mainly to the fact that the export of American boots to Great Britain has largely decreased since a similar class of goods has been made in England. In other ways I think the movement is retrogressive, as the showy, cheap machine boot is not as watertight or lasting as the old hand-made boot, and one hears continual complaints of damp and leaky boots which will not stand repairs. As we seem to have entered on an era of cheap machine-made boots with these propensities for leaking, it seems to be inevitable that the wearing of goloshes will increase, being extended from the occasional snow storm periods to the much more general times of rain and mud.

THE prospectus of the Northern Counties Transport, Limited, was advertised on January 22, and it seems timely to say a few

NEW TRANSPORT COMPANY.

words of reference thereto. The share capital is £50,000; £45,000 in participating 7 per cent. preferred shares and £5,000 deferred shares. The latter have been fully subscribed by a number of men whose names appear in the prospectus, and £30,000 of the preferred shares were offered to the public. Motor haulage is now increasingly used in the industrial districts of Lancashire and Yorkshire, and it is thought that a company owning a large fleet of motor vehicles under competent management can earn large profits and save money; for firms which now use horse or railway haulage, rapidity of transit being an important feature. The company is to commence with 100 vehicles, being motor lorries with chassis of the Milnes-Daimler manufacture. These vehicles are being purchased from a previous company called Express Road Haulage, Limited, of Preston, at the price of £300 each. They carry a load of four

tons at an average speed of eight miles per hour. The manager of the company is C. S. Lyon, a civilian engineer, who acted for many years as inspector of army mechanical transport at the Aldershot Depot, where he had the rank of captain in the army; and the appointment seems a capital one. On the basis of 4d. per ton-mile the earnings of 100 vehicles doing forty miles each per day would, it has been calculated, produce a result which would leave a net profit of £19,585 per annum. With regard to the important matter of tires, a contract has been made with Chas. Macintosh & Co., Limited, whereby they agree to supply and maintain the company's vehicles in tires at a fixed sum per mile for a period of two years. I note that the estimated cost of the tires is £7,801 per annum, though the details of the contract are not divulged. Depreciation is allowed for at the rate of 20 per cent. per annum.

Mr. E. L. Curbishley, who has been for ten or eleven years prominently connected with the evolution of the Gorton Rubber Co., Limited, has recently resigned his position of director and general manager and will, I understand, shortly start manufacturing on his own account. Mr. Curbishley came to Manchester with the late Mr. Harry Heaton, Jr., when the latter took over the Gorton Co., which in those days was a much less pretentious affair than it has since become under Mr. Curbishley's wide knowledge of the trade and close devotion to its affairs.

Mr. Charles Blair, whose reclaiming and other patents recently received notice in THE INDIA RUBBER WORLD, has disposed of his patent rights and inventions to the Reinforced Rubber Co., Limited, and has entered the employ of the company.

Mr. Wilfrid Lilley is now managing director of the Premier Rubber Co. of Manchester, the successors of B. Cohen & Co. Mr. Lilley is of the firm of Lilley & Skinner, the well-known boot factors of London, this firm having acquired a large interest in the Premier company which, originally connected only with waterproofing, now makes mechanical goods, heel pads, etc., as well.

Mr. E. E. Buckleton, of the North Western Rubber Co., won in the Appeal Court when the defendants sought to have the judgment, given in Mr. Buckleton's favor at the Liverpool assizes upset. His case was one in which Mr. Buckleton claimed damages from an important firm of rubber brokers for his investment in a plantation company promoted by them.

Mr. Morland Dessau has resigned his management of the Crude Rubber Washing Company, Limited, and the directors have appointed Mr. Charles L. Marshall, of the Marshall Tire Co., as technical adviser, eligible to a seat on the board. Owing to the serious loss incurred by the company it is proposed to reduce the capital by one-half.

A CHEERFUL PROMOTER.

Mr. Harcourt, the English colonial secretary, is reported to have told this anecdote at a recent dinner of rubber planters. He said that a London friend of his was approached by a promoter who wished to float a rubber company. His friend was quite willing to listen to the proposition, and asked "How many trees have you?" "We haven't any trees," was the reply. "Well, how much land have you?" "We haven't any land," he answered. "Well, then, what have you got?" "Why," said the promoter, "I have a bag of seeds."

RUBBER RAZOR WIPERS.

An English patent has been granted for saucers or stands for shaving mugs, with which is incorporated a razor-wiper in the form of a strip of rubber, which is fixed in grooves in the side of the dish, in which are projections to prevent the lather from spreading.

LONDON RUBBER NOTES.

By a Resident Correspondent.

RUBBER IN THE ATHLETIC WORLD.

It was a surprise visit, in the strictest sense of the word, which I paid to Messrs. A. G. Spalding & Bros.' athletic goods factory, at Putney Wharf. I sent no preliminary letter acquainting the firm with my wish to look over their works; and *en route* to the establishment, which is famous throughout the sporting world, I discovered that I had not a card with me; and as I knew no one at the works, or in the neighborhood who could establish my identity, I told myself that I was on rather a hopeless errand. However, walking into the office, I gave my name, indicated my business, and asked to see the manager. I was told that he was very busy. Nevertheless, a messenger was sent to his room, and within a couple of minutes I had his ear. The door of the room was ajar—a man passing by was called in. He turned out to be the foreman of the golf club department. Instructions were given him to show me over his shops, and then to pass me on to the foreman of another department, with similar instructions whereby I could make the round of the factory. Every assistance was to be given me in prosecuting any enquiries I wished to make, and it was to be particularly borne in mind that I was specially interested in the use of rubber in connection with the goods made.

Within five minutes of my entering Messrs. Spaldings' office, I was in their adjoining factory. And not only had I the satisfaction of knowing that I was quite a "surprise" visitor, but I was pleased to remember that there could not have been a single warning given to my guide. Never have I felt more strongly convinced that I was seeing work done under everyday working conditions.

GOLF CLUBS.

At the outset of my expedition, I watched golf clubs in the making.

The heads of these clubs are all modeled out of American persimmon or dogwood. The material is imported in the form of roughly-cut-to-shape blocks, to save freightage on waste. The shafts are specially selected from the finest sun-dried split hickory obtainable.

Machines do a share of the work that goes to the making of each club: a band saw cuts the rough blocks nearer to the required shape of the head; a head-turning machine, with tracing wheel and model—an American masterpiece—carves the head into perfect form; a third machine cuts the lead and horn; by a fourth the heads are sandpapered on cones.

But these machines have to perform such delicate operations that success depends largely on the operators in charge of them. In watching Spaldings' mechanics, I quickly gained the impression that the firm makes no idle boast when it advertises that it employs only the most experienced hands. And this impression deepened into a conviction, which went far towards explaining how the firm has won its reputation, as in department after department my attention was riveted by the careful and dexterous way in which the handicraftsmen employes performed their work.

There is considerably more hand work than machine work in the manufacture of these wooden clubs, and numbers of highly skilled laborers are busily engaged all the year round in planing shafts, fitting and gluing the shafts into the sockets of the heads, filing down sockets to merge into the surface level of the shafts, staining, polishing, whipping the joints, and putting on grips.

It is in connection with the grip that rubber is most largely used in this department. In the opinion of a growing number of golfing devotees, rubber insures a firmer grasp than does leather; and Spaldings' rubberized canvas grip has won for itself a particularly wide and enviable popularity.

Gutta, or rubber facings are used on some of the heads.

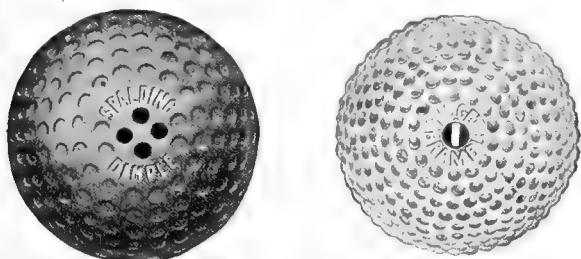
In reply to my inquiry as to whether more or less rubber was being used in this department now than in the past, the unhesitating reply was "More."

By the way, before leaving the shops where the clubs are made I went into the forge. Golfers may rest assured that all Spalding irons are genuine hand-made goods. I saw the irons being made from start to finish, and the only machines with which they came into contact—there are no others in this part of the premises—were the buffs which do the polishing.

GOLF BALLS.

Golf balls essentially come under the heading of rubber goods; and in this country, at any rate, it is customary to guard nearly every place where any such goods are made more jealously than a royal residence.

The door leading into the golf ball part of the factory was labeled "No Admittance." Upon reaching it, I was requested to wait until the manager had been specially asked whether he meant me to be shown in here. He was soon on the spot by my side, and on the outer threshold of that closed door we discussed the great secret of the rubber goods industry. It is difficult to persuade the public that there is nothing sordid about that secret; but any one with a practical knowledge of the rubber industry is well aware that the rule of "No admittance except on business" has a right to command respect.



SPALDING GOLF BALLS.

I explained that I had no wish to spy into the composition of the "dough," that I knew there was a logical reason for my not being taken to see the mixing process. Immediately the door was opened, and I was allowed to pass through into the spacious apartment where from 100,000 to 120,000 dozen of the world's supply of golf balls are made every year. One hundred and fifty women and girls, besides a large number of men, are employed by this factory solely for the making of these balls. I will describe the process of manufacture as I saw it, with my own eyes, being carried on in the various stages.

The start of the core is a special "dough." Round this is wound rubber tape, the width thereof used in the successive layers being 1 inch, $\frac{1}{2}$ inch, $\frac{3}{8}$ inch and $\frac{3}{16}$ inch; the core is completed by the winding thereon of a layer of rubber thread, $\frac{3}{32}$ of an inch in width. Up to the stage when the $\frac{3}{8}$ -inch tape is used, all the winding is done by hand. At this juncture, the core undergoes examination by a special machine, which tests the compression; and it is checked with regard to size. The narrowest tape and the thread are then wound upon it by machinery, and when the core is thus completed it is again tested.

The rubber covers are made in two parts, within cup-like molds which have a plain surface. A machine cuts away the "spue" separately from each half cover. A core is then placed between two of them, and the whole is enclosed in a mold whose surface is patterned with the well-known "Dimple" design of the Spalding marking. Each ball is now vulcanized, after which it again goes through the "heavy" or "light" compression machine. Finally it is painted, by being rolled between the palms of hands that are kept well coated with fresh white paint.

Since all the rubber, dough, tape and thread is weighed before

it is used, on scales that are so finely adjusted as to register correctly to within less than half a gram, and every ball is separately tested over and over again as regards compression and weight, it is practically impossible for a defective ball to sneak its way out from the factory.

The Spaldings are about to put on the market, simultaneously in America and England, an entirely new golf ball, to be called the "Domino." This is a totally different article from the ball of that name which has already been on the American market.

The ingredients used in the special preparation which is to be used in the "start" of this new "Domino Ball" have never before been mixed in the particular manner to be followed in this method of compounding them. The dough is something entirely new in the rubber world. The "Domino" will be a heavy ball, with "Dimple" marking. And it is to be of medium size, that is to say, exactly between midget and full size. The price has been fixed at 30s. per dozen, retail.

CRICKET BATS AND HOCKEY STICKS.

In the cricket bat department, I devoted most of my attention to handle making, for it is in this part of the bat that rubber plays a highly important constructional function. I saw the special patent handles being made for the high grade "Record" and "Century" bats. In the center of the rattan canes forming the main body of the handles a piece of solid rubber, square in section, is fixed, and over this, throughout the length of the handle, is placed a strapping of rubber. In one corner of the workshop stood a big lot of these specially high grade bats, and the past history of their class naturally set me speculating on the marvelous feats that any one of these representatives might be destined to accomplish. Today, they were all passively awaiting the momentarily expected arrival of Tom Hayward of the Surrey Eleven. He examines every one of Spaldings' best cricket bats, and according to his judgment they are classed and stamped "Record," which is to say first grade, or "Century," which indicates a slightly lower standard.

Strips of rubber are put in the centre of the handles of all other cricket bats made in this factory, with the exception of the practice class. The bats are graded according to the number of these rubber strips in the handles, on a descending scale from three strips to one. Hockey sticks are made and graded in a similar way, four strips of rubber entering into the composition of the best variety. Some idea of the extent to which rubber enters into the manufacture of athletic goods may be gathered from the fact that in their London workshops alone Spaldings use about thirty tons of the material yearly.

FOOTBALLS.

The Spalding footballs are made at the Cowley branch of their works some little distance out of London. This interesting topic will be reserved for a later story.

Basket balls, with Pará rubber bladders, are also made in the Cowley factory.

THE GÖSSEL RUBBER SUBSTITUTE FROM SOYA BEAN OIL.

According to details published of the French patent No. 430,183, granted to F. Gössel and A. Sauer for a rubber substitute, four alternative processes are described, as follows:

1. Treating Soya bean oil with nitric acid of specific gravity 1.14 to 1.40.
2. Heating 40 parts of Soya bean oil, with 7 to 12 parts of sulphur up to 150-190 degs. C.
3. Mixing 40 parts of Soya bean oil with 8-14 parts chloride of sulphur, diluted with benzine while being heated; the mixture being then cooled.
4. Soya bean oil is heated for some time above its boiling point, in order to partially polymerize it, and is then treated with sulphur while being heated.

A Danish View of Rubber Reclaiming.

A WELL known manufacturer of reclaimed rubber in Denmark thus discusses his line of business. When he began, some years ago, there were only a few grades known, and rubber manufacturers in many cases showed a disinclination towards their use. Opinions have meanwhile changed, so that rubber goods factories, he remarks, now have in various cases their own reclaiming plants.

Doubt is, however, expressed whether privately owned plants will finally prevail over those which reclaim for the trade, owing to the limited experience of the former.

While some manufacturers have thus installed regenerating plants as a part of their equipment, they would seem to have done so experimentally, rather than with the idea of permanently doing this work for themselves, and of thus solving in their own factories the various problems affecting the reclaiming of rubber. To use his own words:

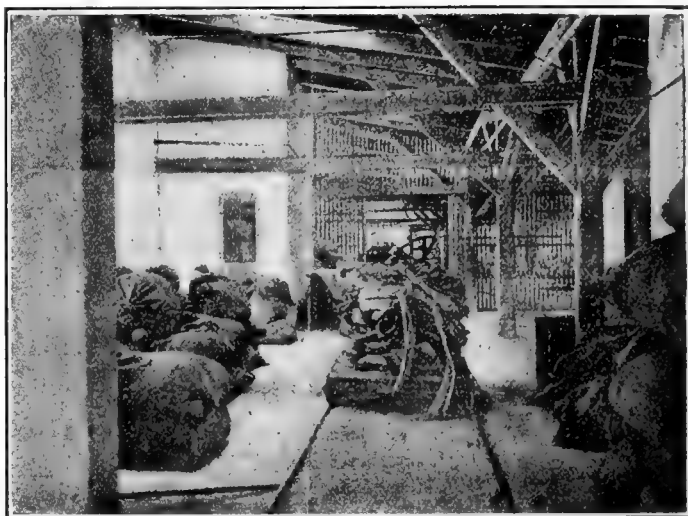
"In my opinion, the rubber goods manufacturer has so many difficulties to conquer in his own work that he should leave the unsolved questions of reclamation to special concerns. Operating such a plant is a piece of pioneer work, as the financial results have shown that none of the existing plants has been permanently run at a profit."

The difficulty lies not only in the question of de-vulcanization, but also in the nature of the waste treated, which is no longer what it was five (or even two) years ago. Owing to the situation of crude rubber, waste now contains a notable quantity of reclaimed rubber. It constantly deteriorates in quality, and is gradually becoming less and less varied in character. This partly results from compounding formulas being transplanted from one factory to another, through changes in the technical staff.

Another factor by which reclaiming is unfavorably influenced, consists in the fluctuations in the prices of waste. The profits of

clearly see its unprofitable nature when undertaken upon a small scale.

One reason for the prejudice entertained by manufacturers against purchased reclaimed rubber is that they do not sufficiently test its physical and chemical properties, with the result that they



STOCK ROOM IN A DANISH RECLAIMING FACTORY.

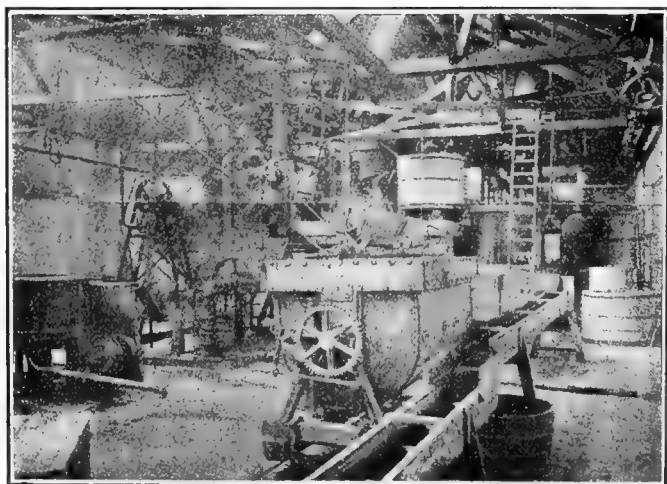
use it the wrong way. Those concerns which have not a trained chemist of their own would do better to let such investigations be carried out by a rubber laboratory. This fact is unfortunately in most cases not appreciated, and an objection expressed to the purchasing of reclaimed rubber, on the ground that the article cannot be examined. In undertaking the process for themselves, they entrust it to a workman, thus leading to a good deal of trouble and annoyance, and not considering that it is much easier to thoroughly test a product than to make it themselves.

It would be equally unreasonable for the rubber goods manufacturer to reproach the reclaimer with the mistakes of the initial period, with a view to proving the necessity of carrying out the process for themselves. The conditions attending early development apply to the reclaiming industry in the same way as they do to rubber manufacture.

With regard to a suggestion which had been made of waste dealers themselves becoming reclaimers, he expresses the opinion that a waste dealer with a few thousand marks capital could not succeed in such an enterprise.

As to the waste arising in the process of manufacture (considered separately from old manufactured rubber) it is suggested that such waste should be sorted, instead of red, white and black being thrown together; its further treatment by the manufacturer, or otherwise, being thus facilitated.

The annexed illustrations show the boiling and washing department, containing in the foreground the "sand-washer," in which the particles of sand are removed; also a part of the stock-room in a Danish reclaiming factory.



TREATING ROOM IN A DANISH RECLAIMING FACTORY.

the operation naturally depend upon the cost of the waste and upon its yield, as affected by the inferiority of the original manufactured product. It would, therefore, be to the interest of the reclaiming industry for the prices of waste to continue at a low point. If, however, hundreds of rubber goods manufacturers were themselves to carry on the process, this object would not be attainable. In any case, the hope is expressed (from the reclaimer's point of view) that manufacturers will abstain from themselves carrying on the process, according as they more

DANISH RUBBER FACTORY REORGANIZED.

The Aktieselskabet Roulunds Fabriker of Odense, an important Danish belting concern, which went into liquidation a year ago, has been reorganized with a capital equalling \$22,400.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

The Rubber Industry of Japan.

By Our Regular Correspondent.

THE FUJIKURA INSULATED WIRE AND RUBBER CO., LIMITED, TOKYO.

THIS company owed its first beginning to the manufacture at Kanda in 1882, of silk and cotton flexible lamp cord by the late Mr. Zempachi Fujikura, who had previously been engaged in making cotton braids with a machine of his own invention. In 1886 he removed his plant to Shinjuku, where he added weatherproof wire to his product, using the motive power of a watermill.

From the beginning of his career, Mr. Fujikura had foreseen the growing importance of rubber as an insulating medium. Seeing that the Japanese rubber industry of that time was deficient in expert knowledge he got Dr. J. Shimomura and Dr. K. Uyeno, professors at the Tokyo Imperial University, to make systematic analyses of the article, and took considerable pains in developing the industry.

In these efforts he was ably seconded by his younger brother, Mr. Tomekichi Matsumoto, who had been several years in the United States and had returned to Japan in 1887. In getting up the subject at the Imperial Library, Uyeno Park, Tokyo, the last-named gentleman had an opportunity

Upon the occasion of his visiting the United States, Mr. Okada was enabled, through the assistance of Mr. Henry C. Pearson, editor of THE INDIA RUBBER WORLD, to obtain introductions to several important American rubber manufacturing companies.



TOMEKICHI MATSUMOTO.

On the death of Mr. Fujikura, in 1904, the business reverted to Mr. T. Matsumoto (already referred to), who converted it into a limited partnership, with a capital of \$25,000; the members being Messrs. T. Matsumoto, K. Okada, U. Fujikura, and the late Mr. J. Hyodo. The style of the new concern was the Fujikura Insulated Wire and Rubber Co., the name of the original founder

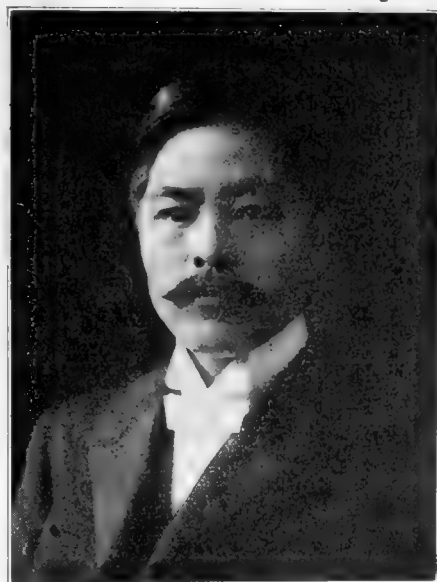


FACTORY OF THE FUJIKURA INSULATED WIRE AND RUBBER CO.

of realizing that, although books gave information about qualities and sources of rubber, they failed to deal with rubber manufacturing methods. Experiments continued at the Fujikura works, aided by the advice of experts. Finally, in 1892, the factory succeeded in making a rubber-like compound, for the production of which the concern had for some time been making unsuccessful efforts. From 1893 to 1900 their normal manufactures were continued, operations being facilitated by the erection of an enlarged factory at Tokyo.

In September, 1907, the premises were destroyed by a cyclone, being afterwards rebuilt on an enlarged scale. One half of the buildings are now being again rebuilt and will be ready by July next for operation as a factory of marked completeness.

Further technical progress was largely due to the study of American methods by Mr. Kenzo Okada, a nephew of the partners already referred to, who went to the United States for that purpose in 1894. Upon his return to Japan in 1899, he installed a good deal of machinery of foreign make, and with the aid of improved ingredients and preparations, finally accomplished the manufacture of rubber-covered wire.

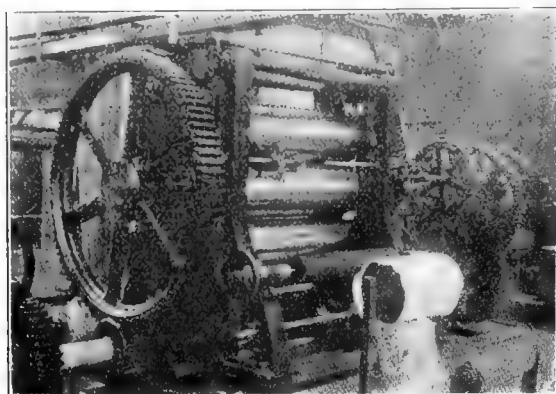


KENZO OKADA.

being thus perpetuated. The various increases of capital indicate the progressive development of the partnership's business, the figures having been: 1904, \$25,000; 1905, \$50,000; 1907, \$100,000; 1909, \$250,000. In September, 1911, the concern became

a joint stock company; the capital being \$500,000, of which \$325,000 was paid up.

The product of the factory includes weatherproof wire, rubber-



CALENDER ROOM.

covered wire, lamp cord, cables, patent enamelled wire, etc.; while the motive power comprises:

Boilers (3)—70 h. p.; 125 h. p.; 150 h. p.

Solid Steam engine (1)—65 h. p.

Dynamo (1)—100 h. p.

Suction gas plant—140 h. p.

About 500 hands are employed.

Among the various sections of the plant are the braiding shop, stranding shop and rubber shop, as shown by illustrations. It likewise includes the rubber mixing and tubing shop, finishing shop, tinning shop, drying rooms, testing room, etc.

The principal officials of the company include: Mr. Tomekichi Matsumoto, president, and Mr. Kenzo Okada, director and superintendent, portraits of whom are annexed.

During the past ten years the Japanese Department of Communication has been quite an extensive user of the product of this company, whereas formerly it used only the product of the India-Rubber, Gutta-Percha and Telegraph Works Co., Limited, and Siemens Bros. & Co., Limited. Since the Russo-Japanese War the demand for insulated wire has



OFFICE OF THE FUJIKURA INSULATED WIRE AND RUBBER CO.

greatly increased and the War and Navy Departments, as well as the Communication Department, of Japan, are customers of this company. The electric companies of Japan, China and Corea also use its product.

A subsidiary company, under same general direction, makes waterproof cloths and other fabrics for government purposes.

A HIGHLY VALUED CERTIFICATE.

A HANDSOMELY engraved certificate, which will be highly valued in this office, has been sent to the editor of this paper by the officers of the Second International Rubber and Allied Trades Exhibition, which was held in London in July of last year. It is a very courteous recognition of Mr. Pearson's interest in the development of *Castilloa* planting and reads as follows:

INTERNATIONAL
RUBBER AND ALLIED TRADES EXHIBITION
ROYAL AGRICULTURAL HALL,
LONDON, 1911.
PATRON
HIS MAJESTY KING GEORGE V
PRESIDENT
SIR HENRY A. BLAKE, C. C. M. G.
HENRY C. PEARSON, ESQ.
EDITOR, "THE INDIA RUBBER WORLD"
NEW YORK CITY.

This certificate is issued with the object of congratulating you on the great interest you have evinced in connection with the advancement of the *Castilloa Elastica*, by presenting a magnificent thousand dollar Trophy. Though the Competition did not realize the object you wished, it brought forward several interesting suggestions, and there is no doubt that at the 1914 Rubber Exhibition in London, the problem of the satisfactory extraction of the latex from the *Castilloa* will be solved and the Trophy awarded.

Signed:

HENRY A. BLAKE,
President.

A. STAINES MANDERS,
Organizing Manager.

D. FULTON,
Secretary.

WIRELESS TELEGRAPHY AND CABLE MANUFACTURE.

NOW that wireless telegraphy has assumed a practical instead of a merely experimental form, the question arises of its competition with the cable system. On this subject the "Gummi-Zeitung" remarks that where there is a stream of regular traffic, the cable, notwithstanding the higher cost of its installation, can be operated more economically than the wireless telegraph, the working of which is said to be very expensive. Copper wires and cables require for their operation far less electricity than the wireless system. Hence the necessary installation of powerful machinery, and the erection of lofty masts (or *antennae*), in the latter case, besides the high cost of working.

Consequently, wireless telegraphy can only be used to advantage where there is a limited amount of traffic, or where the laying of cables is attended with special difficulty. These conditions exist in the over-sea possessions of European powers, as well as in telegraphic communication with these colonies, and it is specially in such territories that the cable industry has to fear competition.

The extension of wireless telegraphy in the German colonies has been facilitated by the removal of certain difficulties, which impeded the transmission of signals, as reported at the recent meeting of the Technical Commission of the German Colonial Economic Committee. By the erection of a series of wireless stations the German government has followed the example of the English authorities, who have established Marconi stations at the most important British colonial points.

In conclusion, the opinion is expressed that the cable manufacturing industry ought to pay special attention to instances where the installation of wireless is considered impracticable; in order to promote the adoption in such cases of the ordinary system.

A GERMAN VIEW OF RUBBER HEELS.

WHEN first introduced, rubber heels constituted a relatively simple feature of the industry. At present, however, the competition in shapes and qualities is such, that there is apparently no limit to the variety of which the article is susceptible. As the "Gummi Zeitung" remarks, a good deal of trouble and patience was necessary, while developments were impeded by the non-success, in many cases unavoidable, of the novelty.

In the first place the determination of the most suitable shapes and of the methods best adapted for attaching the heels, necessitated costly practical experiments. The rubber manufacturer, who had never had to do with heels, could not be expected to know the special requirements connected with them, while the shoemaker lacked the needful acquaintance with rubber, which, of course, has to be treated differently from leather.

Before this question was in some measure solved, a large quantity of more or less unsuitable goods was placed on the market, which fact tended to affect the manner in which the article was being adopted. If from the first there had been fewer misconceptions as to the manufacture and quality of rubber heels, they would have met with a more rapid and wider distribution. However, by correcting these defects, an opportunity was afforded of demonstrating the advantages of the article, although a good deal of questionable work had been meanwhile placed on the market.

DURABILITY OF RUBBER HEELS.

The main point on which the public needs to be reassured is that of the superior durability of rubber heels, while their other advantages (such as a lighter and more elastic tread) can only be regarded as forming adjuncts of a pleasing character. If they will not last, all other good qualities will not make them go. They must at least wear as long as leather heels, let us say two or three months; but as leather is cheaper than rubber, greater durability is called for in the latter material. The only way to make rubber heels an article of general use, is to give their wearers the impression that they have found something better than leather heels.

GOOD MATERIAL NEEDED.

On this point it is asserted that by using heels of good material there is no difficulty in so increasing the durability of rubber as to make their life two or three times that of leather heels, while the difference in cost thereby involved is more than compensated by the improvement in quality, as putting on new heels (whether leather or rubber) involves cost of labor in excess of that represented by the material used. As the weight of the body is largely borne by the heel, the burden on that limited surface is relatively heavy. The rubber heel should not be of too yielding a character, but should display great toughness. At the same time, it should not be too hard, or it would lose the property of imparting elasticity to the step, in addition to being brittle.

This toughness should result from a good quality of material, it being recommended to use the best Pará rubber, with the addition of hardening ingredients such as magnesia, litharge, etc. Any manufacturer using cheap, soft grades, and trying through high temperature to attain the desired results, will be disappointed. Too great heat results in the destruction of the elasticity, particularly in low grades of rubber; while moderate heating is advisable even with better qualities. Rubber heels are often kept a long time in stock before they are used, and in such a case, if the material has been subjected to a high temperature, they are likely to deteriorate until there is a doubt of their being suitable for their intended purpose.

Another point named is the relatively heavier weight resting on the smaller surface of a ladies' heel, which consequently requires to be composed of the best material. In these smaller

sizes, moreover, labor forms the chief element of cost, so that a slight economy in the value of material does not count for much.

In the selection of shapes, it is of course advisable to choose those which are generally considered suitable. This course is all the less easy, on account of the many and frequent changes of fashion, and the consequent diversity of requirements.

PROSPECTS OF BUSINESS.

In conclusion it is remarked that there are the most encouraging prospects for rubber heels, provided the quality is maintained; and cheapness is not regarded as a preponderating factor. In view of the costly nature of the manufacture, it is doubly necessary to produce goods that will sell and do credit to the makers. Competition being keen, only "tip top" goods should be turned out, of standard character and attractive in appearance.

NEW GERMAN SUBSTITUTE FOR HARD RUBBER.

According to German reports, Herr Karl Scherer, of Frankfurt-on-Main, has produced a new substitute for hard rubber and vulcanized fiber, which is being placed on the market under the name of "Rionite." It is claimed that the new product is of the highest insulating properties, resisting water and acids; being, moreover easily worked and polished, and being made in various degrees of hardness and fusibility.

NEW RUBBER TRADE ASSOCIATION IN HAMBURG.

OUT of the Hamburg firms interested in rubber, 71 have joined the newly formed association of rubber merchants, while 39 have declined to join and 32 will await developments. The association will take steps with a view to the introduction on the Hamburg exchange of business in rubber futures.

Hamburg dealers, it is reported, are not in sympathy with this movement, which is being promoted by firms which import rubber and are not strictly speaking rubber traders. Regret has been expressed in some quarters at this attitude of the local rubber dealers.

GERMAN RUBBER IMPORTS.

GERMAN imports of crude rubber for the calendar year 1911 were 19,948 tons, against 18,705 in 1910, exports having been respectively 4,666 tons and 4,754 tons. The net consumption of Germany represented for 1911, 15,282 tons, as compared with 13,951 tons for 1910; this result showing an increase of 10 per cent. in consumption.

One of the features of the year 1911 was the increased import from Mexico, which amounted to 2,099 tons for that year, while that of 1910 had only been 1,347 tons. This increase is attributed to the progress being made in guayule cultivation in Mexico.

INFLUENCE OF COLD ON RUBBER GOODS.

RUBBER goods, when stored, must be protected from frost, says a German expert. Sufficient attention is not paid to the fact that in many instances rubber long exposed to frost loses its elasticity; becoming hard and brittle, and therefore unserviceable. It is consequently recommended to protect rubber goods against temperatures below freezing point, in order to avoid unnecessary losses.

WHAT TERRITORY DOES "JAPAN" INCLUDE?

Attention is called in the German press to the advisability of special stipulations in contracts with Japanese agents, defining the exact meaning of the word "Japan." The territorial extension of Japan during recent years has rendered it advisable in all cases to specify to which Japanese islands contracts apply, and particularly to state whether they include Corea.

EUROPEAN RETROSPECTS AND PROSPECTS OF RUBBER.

IN their review of the India Rubber trade for 1911, Messrs. S. Figgis & Co., London, comment upon the excellent quality and preparation of the plantation rubber shipped to the English market. The readiness of importers to sell at market values, while Brazil attempted to hold up prices, caused a phenomenal demand from consumers for plantation rubber. That deliveries have in England more than kept pace with increased imports is regarded as a healthy and encouraging sign; this feature of the situation being illustrated by the following table:

ENGLISH TOTALS, INCLUDING ALL DESCRIPTIONS OF RUBBER.

	Imports. tons.	Deliveries. tons.	Stock Dec. 31, 1911. tons.
1907.....	22,964	21,317	3,268
1908.....	21,611	23,369	1,510
1909.....	24,563	24,225	1,848
1910.....	32,659	29,980	5,231
1911.....	33,964	34,054	3,954

The extent to which this development has been caused by plantation rubber may be seen by comparing the figures of 1909 and 1911 of English imports from the East and from Brazil:

	Ceylon and Malaya. tons.	Pará and Manaós. tons.
1909.....	3,607	10,179
1910.....	6,598	12,433
1911.....	10,656	11,726

A satisfactory feature of 1911 has been the increased forward delivery business, many companies having secured advance sales of a good portion of their output. The total world's supply for 1911 (nearly the whole of which was taken by consumption), is estimated at about 88,000 tons, as follows:

WORLD'S SUPPLY AND CONSUMPTION 1911 (ESTIMATED).

EXPORTS.	CONSUMPTION.
Brazil tons 39,000	Europe—
West Africa 15,000	England tons 12,000
East Africa (wild),	Germany and Austria 14,000
Penang, Borneo and	France 8,000
Rangoon 5,500	Russia 8,500
Assam, Madagascar,	Italy 2,000
Central America and	Japan and Australia... 1,500
Mexico 2,500	American and Canada.. 42,000
Plantation 14,200	
Total 76,000	
Guayule 9,200	
Malaysian and extracted	
from jelutong 2,800	
Total 88,000	Total 88,000

Messrs. Gow, Wilson & Stanton, of London, in their comprehensive report for 1911 emphasize the statement that plantation rubber, which previously ranked second in the English market, has now taken the first place, as regards volume of market business as compared with other grades. The quantity offered at auction in London has risen from 348½ tons in 1906 to 9,699 tons in 1911; the average prices ranging for the six years: 1906, 5s. 6¼d.; 1907, 4s. 9½d.; 1908, 4s. 1¾d.; 1909, 6s. 7¾d.; 1910, 7s. 7¾d.; 1911, 5s. 0½d. It is added that the larger auctions have tended to prevent wild and unwarranted fluctuations in prices. These auction averages have been graphically illustrated in a colored chart.

Messrs. Lewis & Peat, of London, have issued a well-executed chart, showing in graphic form the fluctuations of rubber prices

during the last four years, thus illustrating their comprehensive annual report.

A carefully prepared sheet of tables issued by Messrs. Edmd. Schluter & Co., of London and Liverpool, deals by months with the imports, deliveries and stocks of rubber during the years 1907 to 1911. They have also issued an excellent chart of rubber price fluctuations.

Messrs. William Wright & Co.'s annual report for 1911 includes detailed tables of English monthly imports, deliveries and stocks for the last three years. Present conditions are illustrated by the figures for the month of December, 1911, according to which imports for the month were (in all kinds): London, 1,562 tons, and Liverpool, 1,859 tons; deliveries having been, respectively, 1,382 and 2,130 tons. Liverpool is thus maintaining its position as a rubber market.

The report of Messrs. Grisar & Co., of Antwerp, mentions the fact that there has been a slight improvement in the quantity of rubber exported from the Belgian Congo. Further development is anticipated as a result of the more liberal tax policy of the government. Antwerp rubber imports for the years 1910 and 1911 were as follows:

	1910. tons.	1911. tons.
From the Belgian Congo.....	3,105	3,176
From other sources	953	1,160
Total tons	4,058	4,336

Imports of plantation rubber from the Far East have shown a marked development in Antwerp. An interesting table shows the comparative rubber importations of the world's principal markets for the years 1903 to 1910. The figures shown for 1909 and 1910 are:

	1909. tons.	1910. tons.
United States	31,129	32,916
Liverpool	22,436	27,601
Hamburg	7,500	7,700
Antwerp	4,686	4,059
Havre	3,781	4,458
London	5,435	9,127
Bordeaux	1,988	2,326
Lisbon	3,063	3,424
Total tons	80,018	91,611

The growing importance of Havre as a center of rubber distribution is shown by the table appended to the annual summary of Jean Roederer, of that port. While the figure of imports for 1911 was about 10 per cent. below that of 1910, it exceeds those of 1908 and 1909. Havre imports, which in 1896 were 1,648 tons, had increased by 1911 to 4,008 tons.

Rotterdam arrivals for 1911 were slightly in excess of those for 1910, being reported by Messrs. Havelaar & de Vues as follows:

	1910. tons	1911. tons
African	763	650
East Indian	375	549
Total	1,138	1,199

Amsterdam totals were respectively 60 and 240 tons, the growing importance of that port as a rubber market being thus illustrated.

CENTENARY OF GRISAR & CO., ANTWERP.

THE INDIA RUBBER WORLD acknowledges the lithographic souvenir issued by the well-known firm of Grisar & Co., Antwerp, on the recent occasion of its centenary. This artistic picture shows the various heads of the firm since its foundation in 1811, in conjunction with representations of the various branches of the firm's business; including rubber, gum copal, hides and horns.

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

THE Administration reports of the Department of Science and Agriculture for 1910-11, which have just been issued, contain much valuable information relating to the progress of the rubber industry in the colony, and the results of experiments with different varieties of rubber at the various experimental stations. The returns published in the report of the Board of Agriculture by the Subsidiary Products Committee show that the acreage under rubber at the close of the financial year 1910-11 was only 1,470, the figures for previous years having been 416 acres in 1907-08, 556 acres in 1908-09 and 995 acres in 1909-10. Although these figures lead to the impression that the companies which have introduced capital into the colony have mainly concentrated their attention upon the indigenous product, balata, they bespeak a certain amount of progress, even if small. As a matter of fact, it is possible that there is a margin of error in these figures. No less than 200,000 young plants of the *Hevea Brasiliensis* variety alone have been distributed from the Botanic Gardens during the last few years, exclusive of the distributions of *Sapium Jenmanii* plants, and it is stated by the committee that these alone would suffice to plant 2,000 acres, while stumps and seeds have been imported into the colony in very large numbers by private planters. The lands being planted in rubber, now chiefly Pará rubber, the committee goes on to state, consist largely of newly-empoldered land in the north-western district of the colony, and of forest-covered Crown lands on the islands along the lower reaches of the Essequibo river and in the vicinity of Bartica.

SEEDS FROM SINGAPORE AND PERAK. AN INTERESTING RESULT.

Mr. F. A. Stockdale, assistant director of science and agriculture, in reporting upon the work of the Botanic Gardens, mentions a somewhat curious circumstance. From 55,176 seeds imported from the Botanic Gardens, Singapore, 38,754 plants were raised, a rate of germination of 70.2 per cent., slightly lower than that usually obtained from the seeds of those gardens. From 200,666 seeds obtained from Perak, however, only 3,900 plants were raised, although in each case the seeds were sown within 24 hours of receipt in the colony. Mr. Stockdale is somewhat at a loss to account for the success of the seeds from the one place and of the almost complete failure of those from the other, but draws attention to the fact that whereas Perak packed 600 seeds into a tin which was hermetically sealed, Singapore packed only 600 seeds to a tin that was not tightly closed, from which facts he recommends that not more than 500-600 seeds should be packed in a tin and that the tins should not be hermetically sealed. It is interesting to observe also that the Perak seeds gave every indication that the weather was wet at the time they were packed.

It is a sign of the increasing practical interest that is being taken in rubber cultivation in the colony that the work in connection with the raising of rubber plants has so increased that the Nursery has had to be extended and that seven leaf-covered houses have been built to provide accommodation for from 45,000 to 50,000 plants.

THE SCIENTIFIC WORK.

Reporting upon the work of scientific investigation Mr. Stockdale says that a careful examination of the *Hevea Confusa* and *Hevea Brasiliensis* in the field revealed the fact that whereas the latter shows distinct longitudinal grooves on the older bark near the level of the ground, the bark of the *Hevea Confusa* is perfectly smooth except for irregularly scattered tentacles raised in the form of minute prickles. It is, therefore, easy to distinguish with certainty in the field the difference between these plants.

While *Hevea Confusa* is said to be the most widely dis-

tributed of the local *Heveas*, it gives a product that is weak, plastic and more or less unworkable. A smooth bark raised from an imported seed did not appear to yield as satisfactorily as trees with the back grooved longitudinally, while a *Hevea*, hitherto unknown by the authorities, has been sent from the Potaro district, which gives a more satisfactory product than recently obtained from other indigenous *Heveas*, but it is weak and somewhat plastic. A species of *Sapium* sent from the Boerasirri-Bonasika district, and also found in the northwest district, has been stated by the authorities at Kew to be a new one. It differs from *Sapium Jenmanii* in the inflorescence, and gives a rubber of satisfactory quality. Other new species have been reported which appear to be intermediate between the two.

Professor J. B. Harrison, Director of Science and Agriculture, reports upon the work done at the Experimental Stations. At the Issorova Station in the northwestern district of the colony on the Aruka River, experiments were continued with *Hevea Brasiliensis*, *Sapium Jenmanii*, *Castilloa Elastica* and *Funtumia Elastica*. The last two were more or less failures, and while the trials have shown that only Pará rubber and *Sapium* have done well, they have also revealed the conditions under which they will grow well. The trials have shown that both Pará and *Sapium* require exposure to the sun and satisfactory drainage to enable them to flourish. Of trees planted in belts, only those in the center have grown satisfactorily, shaded trees having made irregular and slow growth. "Both Pará and *Sapium* rubbers," says the director, "planted on well-drained, empoldered land, where, during the earlier years of their growth the rubber plants were kept free from weeds by the cultivation of provision crops, such as cassava, tannias, bananas, etc., have grown satisfactorily, and the growth of the former compares favorably with that reported from elsewhere, but the rate of growth during 1910-11 was not so rapid as in preceding years, due doubtless to the excessive rainfall." It is pointed out that the lateritic hill slopes are not proving as suitable for the growth of Pará rubber as the lower lands have done, but that better drainage in later years may lead to better results.

FAILURE OF SAPIUM ON THE DEMERARA RIVER.

At Plantation Christianburg, on the Demerara River, only Pará rubber has shown any promise. The *Castilloas*, *Maniholt* and *Funtumia* have practically proved to be of no value, while the growth of *Sapium* has been very unsatisfactory. An extension of the experiments to the low hill slopes with both Pará and *Sapium* has led to a more satisfactory growth of the latter. As many as 26 acres are being experimented with at this station.

INTERESTING EXPERIMENTS WITH BALATA.

Very similar results were recorded from Onderneeming School Farm, Essequibo, *Hevea* trees making satisfactory growth, *Sapium* fair growth, *Castilloa Elastica* proving a failure, and *Funtumia Elastica* making little progress. Some interesting experiments were conducted with balata at this station. Some trees were planted and appeared to be growing well.

TAPPING EXPERIMENTS WITH SAPIUM.—DISAPPOINTING RESULTS.

I sent some particulars a little while ago of the tapping experiments at the Bousika *Sapium* reserve. A much more elaborate report appears now from the Director of Science and Agriculture. A series of eight deductions are drawn from the experiments on these trees. They are as follows: 1. The trees yield latex very freely when first tapped and produce rubber of very high quality, not subject to "tackiness." 2. The yields of latex, and consequently of rubber, rapidly fall off during successive periods of tapping. The rubber obtained from later tapings is very subject to the development of "tackiness," and this tendency increases with successive tapping periods. 3. Some, if not all, of the trees, when exhausted by excessive tapping periods, yield latex from which coagulated rubber is not obtain-

able. 4. In a tapping period the main yields of latex and of rubber are obtained in the first two or three tappings. The tapped parts of the trees run practically dry of latex in from three to six successive periods. 5. No signs of "wound response" have been observed, and in all probability it does not occur in *Sapium Jenmanii* trees of mature age. 6. When the lower parts of the trunk of a repeatedly tapped tree are practically exhausted of rubber-yielding latex the higher parts of the trunk may yield latex in relatively large quantities. While the rubber from the latex of the lower part of the trunk may be very tacky or more or less resinous and coagulate with difficulty, that yielded by the upper parts is of very good quality. 7. In practical tappings of the *Sapium Jenmanii* trees of mature age it is advisable to tap as great lengths of their trunks as possible at one operation and not to confine the tappings to the lower parts of them. 8. The wounds made in the bark of the trees during tapping have been found to heal very slowly and unsatisfactorily.

SOME INTERESTING FIGURES.

Some figures will illustrate the foregoing. The average yields of dry rubber per tree during the years 1908 to 1911, from trees over 30 inches in girth at three feet from the ground, were as follow: September, 1908, 8.33 ounces; October, 1909, 5.16 ounces; March, 1910, 1.83 ounces; August, 1910, 1.93 ounces; November, 1910, 1.08 ounces. "The proportion of rubber in the latex of *Sapium Jenmanii* appears to vary considerably," says the director. "The latex obtained in 1908 yielded about 18 per cent. of dry rubber; that of trees tapped for the first time in 1910 contained 15 per cent.; while that yielded by trees which had been subjected to tappings during several periods contained about 11 per cent." The attention given to the subject by the department, aided by the Bacteriological Department, has not resulted in an explanation of the production of "tackiness" in *Sapium* rubber. The trees are now to be given a prolonged period of rest from tapping in the hope that they will recover the power of yielding—commercially—valuable rubber in fair quantity. The question of clearing more of the land at the Reserve and planting it with *Pará* is under consideration. Some years must elapse before definite results are forthcoming, but when they are they should be instructive. *Sapium*, however, appears to be under a cloud at the present time.

RETURNS OF THIRTY-FIVE PROMINENT ENGLISH RUBBER PLANTING COMPANIES.

AS illustrating the progressive rate of increased yield of eastern rubber plantations, a table (recently published by the "Gummi-Zeitung"), summarizing the returns of yields during the last five years, of 35 prominent English rubber planting companies, is of interest. It is, moreover, in harmony with the returns of planting by 43 companies, quoted by THE INDIA RUBBER WORLD in November, 1911 (p. 66), which in 1905 had shown 1,401,215 trees and which number had been successively increased to 13,377,928 in 1911, more than a nine-fold increase in six years. The subjoined table shows an increase in the yield of 35 companies (including 19 which appear in both returns), from 1,186,450 pounds in 1907, to 9,451,459 in 1911, or an eight-fold gain in five years; being practically on the same basis of development as in the other case.

In the later table an interesting comparison is made between recent 1911 estimates and results. The total yields of these 35 companies for 1909 had been 3,759,712 pounds and for 1910 6,931,434 pounds. The estimates for 1911 aggregated 8,255,900 from 29 companies, representing for the 35 about 9,250,000, while the actual results last year for 35 companies aggregated 9,451,459 pounds.

While these returns only deal with about one-sixth to one-fifth of the total number of far eastern companies, they include

the most important concerns; producing, as has been estimated, a large share of the total output.

FIVE YEARS' YIELDS OF PROMINENT ENGLISH RUBBER PLANTING COMPANIES.

Company.	Yield. 1907. Lbs.	Yield. 1908. Lbs.	Yield. 1909. Lbs.	Yield. 1910. Lbs.	Estimate. 1911. Lbs.	Yield. 1911. Lbs.
Harper & Co. (Selangor) Rub. Co.,		5,818	21,153	108,341	200,000	220,841
Kapar Para Rubber Co.,			24,023	169,610	335,000	330,890
Sungei Kapar Rubber Co.,	22,127	37,117	114,970	225,462	300,000	338,400
Seaford Rubber Co.,			43,746	201,405	300,000	300,472
Sungei Way (Selangor) Rub. Co.,			13,594	71,936	175,000	178,396
Linggi Plantations Consolidated Malay Rub. Estates,	140,740	284,873	545,390	878,754	1,000,000	1,064,500
Damansara (Selangor) Rub. Co.,	63,615	111,585	215,893	338,655	380,000	395,850
Highlands & Lowlands Para R. Co. Labu (F. M. S.) Rubber Co.,	57,376	124,610	203,007	314,466	400,000	390,726
Edinburgh R. Estate (Selangor),	193,507	222,287	341,986	511,724	575,000	637,449
Shelford R. Estate	24,582	24,127	86,573	203,696	325,000	265,250
Sungei Choh Rubber Estate Co.,			29,264	82,876	119,700	122,123
P. P. K. (Ceylon) Rubber Estates,	11,584	23,828	28,963	103,104	150,000	142,200
Batu Caves Rubber Co.,		2,258	10,200	52,025		80,341
Batu Tiga (Selangor) Rub. Co.,	14,800	29,200	54,474	62,500	80,000	80,441
Selangor Rubber Co.,	4,312	16,587	45,760	173,127	250,000	258,000
Seremban Rubber Estate Co.,	6,365	7,978	35,500	96,432	140,000	160,858
Ceylon (Para) Rubber Co.,	120,524	189,979	326,654	451,511		469,759
Golconda Malay Rubber Co.,	109,054	134,848	228,626	384,440	430,000	364,188
Sunnygama (Ceylon) Tea Est. Co.,			11,457			64,470
Ulu Rantau Rubber Estates Co.,	18,722	35,103	96,290	178,315	200,000	206,011
Klanang Produce Co.,	1,500	2,608	20,825	97,719	150,000	203,600
Kuala Selangor Rubber Co.,			5,503	65,251		137,420
Ledbury Rubber Estates,		18,886	39,729	93,700	150,000	167,245
St. George Rubber Estates,	8,765	22,597	65,979	124,178	175,000	182,440
General Ceylon R. & Tea Estates,		5,719	23,887	63,011	150,000	140,040
Bandarapola Ceylon Co.,	19,815	26,283	38,570	88,312		179,910
Pataling Rub. Estates Syndicate,			4,314	37,528	75,000	90,050
Anglo Malay Rubber Co.,	58,064	80,922	152,000	323,065	382,500	334,082
Golden Hope Rubber Estate,	224,778	350,688	517,550	673,132	750,000	772,107
Lanadron Rubber Estates,	5,591	15,238	51,420	80,940	114,200	109,655
Ceylon Tea Plantations Co.,	97,203	181,156	249,247	371,816	400,000	375,848
Langkat Sumatra Rubber Co.,	13,426	25,738	54,548	118,626	200,000	240,120
Panawatte Tea & Rubber Estates,		4,131	12,520	45,090		99,656
Total	1,186,450	1,985,347	3,759,712	6,931,434	8,255,900	9,451,459

CONTINUED INCREASE OF EASTERN RUBBER OUTPUTS.

SO FAR as received, the January, 1912, reports indicate a continued increase of Malayan output. The Scottish Malay Rubber Co., Limited, harvested 9,519 pounds, against 5,237 for January, 1911. The Riverside (Selangor) Rubber Co., Limited, reports 10,221 pounds, against 2,820 pounds for the same month last year. Returns from 11 other leading companies for January, record in the aggregate 277,806 pounds, as compared with 170,123 pounds for January, 1911.

Ceylon companies also make favorable reports. The Bambrakelly Tea and Rubber Co., Limited, reports for January, 1912, an output of 7,014 pounds, while the figure of the ten months ended January was only 39,025 pounds. The Sapumalkande Rubber Co. records an output of 15,748 pounds, against 6,257 for January, 1911.

Some Notes on Rubber Planting.

RUBBER PLANTATIONS IN JAVA.

ACCORDING to a recent German consular report, there are about 84,902 acres in Java devoted to private rubber cultivation, in addition to 21,194 owned by the government. Of the private holdings about 50 per cent. are in *Hevea*, 13 per cent. in *Ficus* and 37 per cent in these two varieties, combined with *Manihot Glaziovii* and *Castilloa elastica*.

The area belonging to the government (21,194 acres) is planted as follows: *Ficus*, 18,903; *Hevea*, 2,151; *Castilloa*, 140. Native plantations are not included in this list. The government has likewise about 2,595 acres planted with gutta-percha trees.

JAVA RUBBER PLANTATIONS, LIMITED.

ACCORDING to the report presented at the recent meeting of the above company (registered in 1907), the rubber area in that year consisted of 220 acres *Ficus elastica*, and 100 in *Hevea Brasiliensis*. There are at present 2,201 acres in rubber, of which 1885 are in Pará rubber. Tapping will be commenced early this year, when it is estimated that 8,000 trees will be available for that purpose.

MALANG RUBBER ESTATES, LIMITED (JAVA).

Registered March, 1910. According to latest reports, the plantings on the above estates include: *Hevea Brasiliensis*, 138,000 trees; *Castilloa*, 20,000 trees. The crops are reported to be in a healthy state and to warrant expectations of a steadily increasing revenue.

DJASINGA RUBBER & PRODUCE COMPANY, LIMITED (JAVA).

Registered June, 1910; 41,352 acres, of which 7,010 now cultivated, including 3,037 under rubber. Production, 1911 to end of October, 7,237 pounds. Expect soon to put up rubber factory.

UNITED SERDANG RUBBER PLANTATIONS, LIMITED (SUMATRA).

Registered July, 1907; crop last business year, 218,530 pounds; estimates for current year, 433,000 pounds.

TANDJONG RUBBER COMPANY, LIMITED (SUMATRA).

According to the report of the above company, the trees have reached the producing stage before the period anticipated, which had originally been 1913. The planted area is now 4,521 acres, from which the crop for 1911 is estimated at 50,000 pounds, with an increase for 1912 to 140,000 pounds and further considerable development in succeeding years.

SINGAPORE PARA RUBBER ESTATES.

The crop for the year ended June 30 was 64,157 pounds of dry rubber, while that of 1911-12 is estimated at 120,000 pounds. New coagulating and rubber stores have been built, and considerable progress has been made with the erection of the new rubber factory and the installation of the machinery to be there operated.

WHY PLANTATION RUBBER SELLS.

In commenting upon market reports from London, the "Malay Mail" remarks: "During six weeks . . . some 1,600 tons of plantation rubber have been purchased in Mincing lane, whose value must be somewhere near £1,000,000. That the increased supplies of Middle East produce have been so readily absorbed is explained by the fact that 'the trade' wants plantation rubber, and will pay higher prices than the current value of hard Pará. Plantation material has now been thoroughly tried by manufacturers and has not been found wanting. It is believed to be more suitable, and probably for many purposes more economical."

CATCH-CROPS IN CEYLON.

In dealing with the above question, the "Ceylon Observer" states that the practice of growing catch-crops for four or five years, until the rubber attains the producing stage, is little known in Ceylon, although it has been adopted by some Malayan estates. This difference is due, it would seem, to the idea prevalent at the former point that catch-crops materially retard the growth of the rubber, while that system (although in some instances bringing in an appreciable return), has not, as a rule, been depended upon as a source of revenue during the unproductive period, provision having usually been made by the various companies for that purpose, as part of the original investment.

SELLING RUBBER FOR NEXT YEAR.

LONDON advices report that forward contracts for plantation rubber have been made at 4s. 4d. (\$1.05½) for delivery during the first nine months of 1913. The company making this sale is the Lavant Rubber and Tea Co., Limited; owning 1,124 acres in the Kegalla district, Ceylon, 841 acres of which are planted with about 100,000 Pará rubber trees. The blanket crepe turned out by the company has always been appreciated in the London market for its quality.

STRAITS AND JAVA RUBBER INDUSTRIES.

Mr. C. E. Welldon, the former Maskeliya and Dimbula planter, who has been making a tour of estates in the East, has expressed the view that in the Straits everything was very flourishing, the rubber being in excellent condition and the necessary Chinese and other labor being available. The climate, in his opinion, contributed to give rubber in that quarter a better chance than in Ceylon or Southern India.

While the Chinese are satisfactory workers, they are, he considers, more expensive than Tamils. They are, however, excellent tappers, and their capacity to do heavy work makes their acquisition desirable. He was surprised to find in the Straits that every man had his own method of working.

Sumatra he considered as ranking next to the Straits for rubber, but on the whole he thought Java, with its crops of rubber, tea and coffee, the better place for general progress.

As regards rubber, a good deal of it had been planted at too high an elevation, but where it had been planted at a suitable elevation it would give good results, but not perhaps so good as the Straits or Sumatra. The Dutch planter, though somewhat slow, was generally a very capable man. Many of them had passed through agricultural colleges in Holland, while others had passed through engineering schools.

Mr. Welldon said he could not help feeling that it would not be a bad thing for young Englishmen to go through similar courses of training before taking up planting. He believed it was better for a planter to start life at 21 than at 18 or 19 years of age, and the previous two years or so would be well filled in an agricultural college, an engineering school or even a London office.

BUYING STOCK IN ASBESTOS COMPANIES.

If any of our readers should have contemplated the purchase of stock in any of the following four asbestos companies: North American Asbestos Mines, International Asbestos Mills and Power Co., Northwestern Asbestos Mills Co., or Wyoming Consolidated Asbestos Co., all located in Denver, Colorado, it might profit them to read the somewhat detailed description of these enterprises given in the financial department of the February issue of "Munsey's Magazine."

Obituary Record.

HENRY C. MORSE.

THE death of Henry C. Morse, formerly treasurer of the Revere Rubber Co., occurred on the evening of February 24, at his home on Commonwealth avenue, Boston, of pneumonia. Mr. Morse was born in Norwood, Massachusetts, January 31, 1838. He occupied the office of treasurer of the Revere Rubber Co. for 20 years, retiring from that position and from active business 10 years ago. The funeral was held from



HENRY C. MORSE.

his residence on the afternoon of February 27, the interment taking place at Forest Hill Cemetery. A more detailed appreciation of his life will appear in our April issue.

RESOLUTIONS BY THE RUBBER CLUB OF AMERICA.

It is with deep sorrow that we learn of the death of our esteemed fellow member, Henry C. Morse, the first president of our club, from its inception in April, 1900, to April, 1901, and for many years one of our honorary vice-presidents—a leader in the development of the rubber manufacturing industry in this country. His unique personality, his faithfulness as a friend, his wisdom as a counsellor will for many a year be remembered by all who were privileged to be counted among his business associates and friends. The Rubber Club of America endeavors, however inadequately, to express, by these resolutions, a deep sense of loss; and it is therefore

Resolved, That in the death of Henry C. Morse the Rubber Club of America and the rubber industry of this continent have suffered an irreparable loss.

Resolved, That we extend to his family our appreciation of his noble character, and our heartfelt sympathy in their great bereavement.

HENRY C. PEARSON,
ELSTON E. WADBROOK,
GEORGE P. WHITMORE,
Committee on Resolutions.

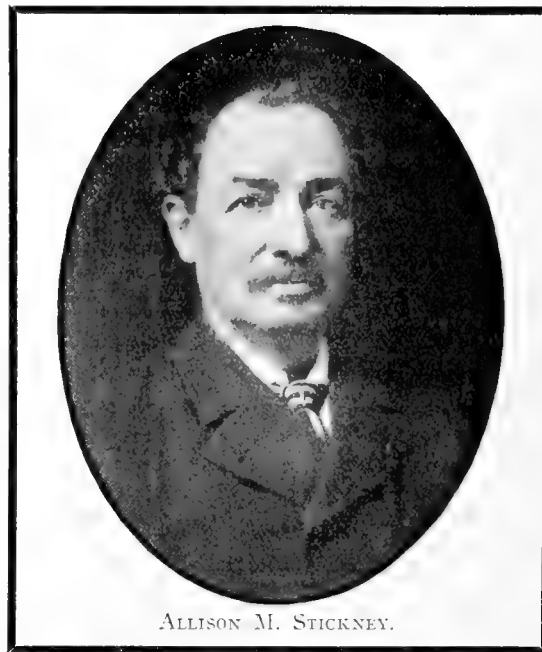
ALEXANDER HENDERSON.

ALEXANDER HENDERSON, a director of the Manhattan Rubber Manufacturing Co. (Passaic, New Jersey), died on February 7, of pleural pneumonia at the age of 38.

ALLISON M. STICKNEY.

ALLISON M. STICKNEY, president of the Wellman Co., Medford, Massachusetts, died at his home in that city on February 13, of pneumonia. He had been in a poor condition of health for some time, but had continued his business activities until pneumonia attacked him.

He was born in Lowell, Massachusetts, in 1847, son of Jonathan Gage Stickney, a noted American inventor, who was one of



ALLISON M. STICKNEY.

the pioneers in the development of rubber manufacture in Europe. Because of his father's connection with European enterprises the son received much of his early education in London and Menin, Belgium, where he acquitted himself with marked credit. He early showed that, like his father, he had pronounced inventive ability, and while a very young man he perfected the Wellman sole-cutting machine, making it so efficient that it was adopted in rubber shoe factories all over the world.

The wide use of this machine often carried Mr. Stickney abroad, and during one of those trips, in 1905, he sent a series of letters to THE INDIA RUBBER WORLD, covering various phases of rubber manufacture in Europe, which attracted a great deal of attention, not only among our American readers, but among rubber people on the other side. The well-known German publication, "Gummi-Zeitung," referred to these letters in a very complimentary way, and quoted from them quite freely.

It was not simply, however, as the successful inventor and manufacturer of highly important rubber-making machinery that Mr. Stickney's career was notable. He was equally noteworthy for his patriotism. When, with his father, he returned to this country as a boy of sixteen, the Civil War was raging. He immediately enlisted in the Pennsylvania Volunteer Cavalry and served in the Union Army until the end of the war, then joining the navy and remaining in that service for a year. At the expiration of that time he became interested in mechanical invention, as already described. He always maintained a most active interest in the G. A. R., being at the time of his death a past commander in a local post at Medford, and a past national department official. He also was prominent in public interests in and about Medford, and during the last ten years of his life served as chairman of the Medford Water and Sewers Commission.

The funeral services, which were of a private character, were held on Saturday, February 17, at his late residence in Medford. The pall bearers were intimate friends and employes of the Wellman Co. He is survived by a widow and two daughters, Virginia and Marion, both very prominent in Medford musical circles.

DEATH OF COLONEL J. W. LINK.

The death occurred here early in January of Colonel J. W. Link, who was responsible for the flotation of the Consolidated Rubber & Balata Estates, Limited, and who was visiting the colony in order to submit proposals to the government concerning railway construction. Colonel Link was an American, coming from an old Virginia family. He was a cadet at West Point when the civil war broke out, and he joined the Northern Army, in which force he rapidly attained the rank of Colonel. At the conclusion of the war he engaged in engineering work in the Amazon Valley and later he joined the German forces and went through the Franco-German war of 1870. Ultimately he became a naturalized British citizen.

He was ultimately connected with several large business concerns, including the Rio de Janeiro Docks. Later he turned his attention to the industrial possibilities of this country, and he was undoubtedly one of the first to realize that the balata industry of the colony was capable of considerable development. Eventually the Consolidated Rubber & Balata Estates, Limited, emerged as a result of his activities, the intention being to pay dividends out of balata while rubber was being grown. The early company, the Balata & Rubber Corporation, was merged with the larger company, together with the licenses of Messrs. Garnett, Davison, McKinnon and Downer, which produce nearly four-fifths of the total output. Up to the present, while it has been found possible to pay dividends, little appears to have been done towards establishing a rubber industry.

It was the transit difficulty besetting the balata industry that impressed upon Colonel Link's mind the need of a railway, but it was in the early days, when he was engaged in the Amazon Valley, that he first conceived the possibilities of making a railway from Georgetown to Manáos pay—and Manáos has grown since those days. Colonel Link formed a syndicate of English capitalists and drew up proposals which were submitted to the local government in 1908. Among the major demands were land grants of ten square miles in alternate blocks and a guarantee of interest of $3\frac{1}{2}$ per cent. The governor of the colony, Sir F. M. Hodgson, K. C. M. G., was not impressed by the soundness of the proposal, and in consequence of his representations it was rejected by the Secretary of State for the Colonies, although public opinion in the colony supported the project. Public opinion in the interval since elapsed has strengthened and solidified rather than otherwise, and it was with the object of presenting modified proposals that Colonel Link was making this recent visit to the colony.

It is also said that Colonel Link was arranging for the combination of balata licenses of Surinam and of this colony for the purpose of simplifying the organizations and protecting the industry as a whole. Such a plan, while ambitious, would have had far-reaching and doubtless valuable results.

NEW TRADE PUBLICATIONS.

THE booklet recently issued by The B. F. Goodrich Co., under the title "Best in the Long Run," serves the purpose of making the reader acquainted with the tires which have rendered that concern famous, from the raw material to the finished article, while at the same time illustrating the salient features presented by the factory itself.

The center of the booklet is taken up by a graphic representation inside a monster tire, of the plant, which is a little world

in itself of men, buildings, equipment and ideas; the fact being given prominence that an automobile tire large enough to encircle it would measure nearly two miles in circumference.

Starting from the primeval forest, the progress of the rubber is followed until it is associated with the fabric in the triple capacity of covering, protecting and binding; becoming, in fact, as it is remarked: "The rubber gristle to the fabric backbone of the tire." An interesting chapter is devoted to showing "How a Cotton Backbone Is Reinforced by Goodrich Methods." To fitly describe this attractive booklet with its artistic illustrations would be to tell the story of Goodrich tires, which purpose is best effected by writing for a copy.

In another booklet entitled "Nine Prophets and a Host of Truly Wise Ones," the results are recorded of the recent post card investigation of the conditions reported by 35,600 tire users. Of the answers received 15,300 were from Goodrich users and gave Goodrich tires an average life, before blow-out or replacement, of 5,300 miles. To tire users this little compendium specially appeals by its practical character.

Catalogue No. 2 of the Hewitt Rubber Co., Buffalo, includes complete lists of the mechanical rubber goods made by that company. Its perforated mats and kindred articles are shown in colored illustrations.

That the motorcycle, as a small automobile, requires a small automobile tire for practicability and real service, is the lesson inculcated by the booklet "Motor Cycle Tires" issued by the Goodyear Tire & Rubber Co., Akron. Hence much that has been and can be said regarding auto tires is more or less applicable to the other description. The Goodyear concern is equipped for making 600 motorcycle tires daily and claims a largely increased trade.

Tires can double or halve the mileage and efficiency of motor trucks, affecting the wear of all parts, however the truck is propelled. Arguing from this standpoint, the Motz Tire & Rubber Co., of Akron, has issued a neat booklet on "Multiplying Truck Efficiency," advocating the use of "Motz Cushion Tires" for light delivery cars and of "Motz Solid Truck Tires" and demountable rims for heavy duty trucks.

In the development of the Spring tire, the recently incorporated American Spring Tire Co., of Chicago, claims to have begun at the foundation (or rather the inside), and built outwards, replacing the pneumatic tube by a series of steel springs, made up in sections conforming to the shape and size of the outside tire or rubber shoe covering. When the latter is placed in position, the appearance of a regular pneumatic tire is said to be obtained, with the avoidance of the troubles that accompany the air-filled tire.

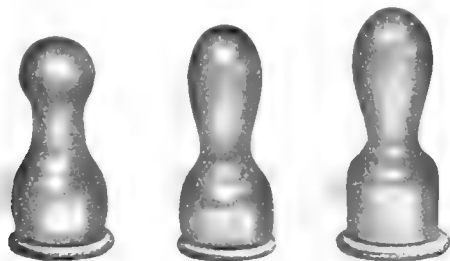
The February issue of "Rubber," the house organ of the Beacon Falls Rubber Shoe Co., has a number of snappy articles, of interest apart from their moral, which is thus editorially expressed, "Say 'Top Notch' to the next Beacon Falls salesman you meet and see what he does." A large sheet of illustrations shows the newest styles of footwear in the various Beacon Falls brands, starting off with "Top Notch." Selections and mail orders being thus facilitated.

A hundred page catalogue, issued by J. C. Bailey & Co., of Boston, might properly be called a museum of rubber goods. It exploits such a wide variety of articles made entirely or in a large part from rubber. It runs the gamut from the "Bailey Wont-Slip Tread Tire" to rubberized cuffs and collars that can be laundered with a damp cloth. It contains at least a dozen different articles that everybody has to use. It shows all kinds of brushes, massage rollers, exercisers, gloves, rubber heels, belts, bandages, hot water bottles—not only the usual kind, but special bottles for the throat, for the ear, and for the other parts of human anatomy—soft and hard rubber syringes, rubber matting, tobacco pouches, atomizers, mattresses, chair tips, clothing, shoes. It certainly shows a most comprehensive collection of rubber goods.

New Rubber Goods in the Market.

PURE GUM TRANSPARENT NIPPLES.

HERE are three illustrations of the Wilkie Nipple. It is made of pure gum and is quite transparent, the manufacturers claiming that this is the only nipple made in this country that can be so described. It is practically identical with the transparent



THE WILKIE NIPPLES.

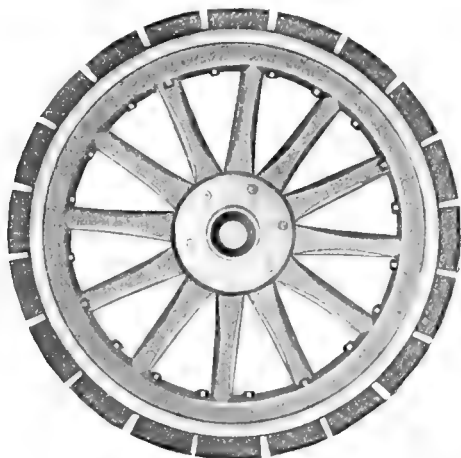
imported articles. These are made with the "Non Colic" ball top. [The Wilkie Rubber Manufacturing Co., Lynn, Massachusetts.]

SECTIONAL TRUCK TIRES.

THE sectional truck tire seems to be growing in favor. It certainly has one very obvious merit—that the injury of one section does not impair the whole tire, but is confined solely to that



one section. The two cuts show the Victor sectional truck tire—one as it appears on the wheel, the other as shown on a small arc of the rim. These rubber sections have steel rods molded in them projecting one-quarter of an inch at the ends. These projections fit into a steel locking bar which is clamped down to the



rim and holds the sections tight. They are only five-eighths of an inch apart, so that there is no observable vibration in the operation of the truck. The chief advantages of the Victor sectional tire are efficiency—as indicated by their guarantee—and simplicity. If by any chance a section of the tire should be de-

stroyed while on the road, in a few minutes' time and with no tools required but a wrench the driver can put in a new section and thus become his own repairer. The further claim is made that sectional tires take a better hold on the ground and thus require less power for propulsion.

A NEW GARDEN SPRAY NOZZLE.

THE Allen Nozzle is the latest development in the evolution in garden spray nozzles. It gives a strong, straight stream with a number of varieties of sprays, ranging from one of a generous character to a very fine mist. It is simple and easy to operate, not likely to get out of order, is slightly in appearance and ought certainly to take with the suburbanite, a large part of whose life is devoted to the beautifying of his lawn. [The W. D. Allen Manufacturing Co., Chicago, Illinois.]



A GUN RECOIL PAD.

A GOOD many men would enjoy gunning much more than they do if it were not for the "kick." Here is a device for stopping the gun from kicking—or at least from kicking too much. It is a gun recoil pad, which goes on where the stock of the gun presses against the shoulder and absorbs at least a large part of the



THE AKRON RECOIL PAD.

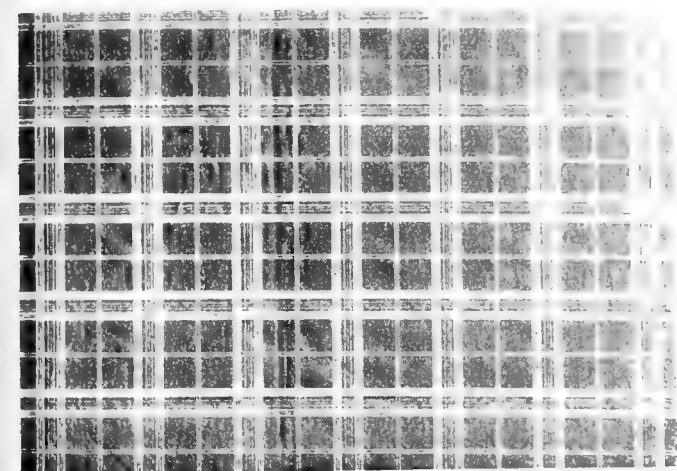
jar. The pad proper is made of rubber that is not only resilient in itself, but has a corrugated finish, each of these facts contributing to minimize the recoil. Over the pad goes a leather cover which saves it from exposure and enables it to be attached snugly to the gun. [The B. F. Goodrich Co., Akron, Ohio.]

A PHOTOGRAPHIC RUBBER STAMP.

A company, very recently incorporated in New York, intends to put on the market a rubber stamp that will accurately reproduce anyone's photograph. It is in other words a half-tone cut made of rubber. The stamp is contained in a little metal case having an ink pad and three or four rubber rollers for spreading the ink uniformly over the face of the stamp. Equipped with one of these little pocket outfits a person fond of seeing his features, can stamp his portrait on his letter-heads, bill-heads, books, or in any other place he may desire. [Photo Type Rubber Stamp Co., No. 277 Broadway, New York.]

PRINTING PATTERNS ON RUBBER SURFACE

Edward A. Williams, Providence, Rhode Island, has invented a process of printing patterns—checks, plaids or any other pattern that any one might desire, as long as it doesn't require more than three colors—directly upon a rubber surface. This means that rubber clothing, for instance, can be made of two thicknesses—one of fabric and one of rubber—and still have a pattern printed on both sides.



PATTERN PRINTED ON RUBBER SURFACE.

The accompanying illustration shows a rubber surface printed by this process. The process is controlled by Starkweather & Williams Co., 47 Exchange Place, Providence, Rhode Island.

WHAT CONGRESSMAN WEEKS REALLY SAID.

THE report, published in our February issue, of Congressman Weeks' able address on the Monetary Problems of the United States, delivered at the Rubber Club dinner in January, was made for us by a stenographer of much experience in this sort of work, but evidently toward the last of that address his mind wandered and his pothooks got mixed, because in the concluding paragraph he made an error thrice repeated that materially changed the significance of that paragraph. Where the speaker said *panic* the stenographer wrote *bank*. If any of our readers were somewhat mystified by that final paragraph, they will find its meaning rendered much more intelligible by the following corrected reproduction:

"If what has been proposed (by the Monetary Commission) is done, we need have no more currency *panics* in this country. We will have financial depressions, as we always have had and always will have as long as business men over-expand and have to contract. Those will come at certain periods, but the currency *panic* will be a thing of the past. A financial *panic*, such as we have known, will be a thing of the past. Labor will not be thrown out of employment; capital will not be idle; the enormous losses which we have had as a result of the almost numberless panics since the Civil War, will be things of the past, and we will go on in the even tenor of our way, doing business as do our commercial rivals in foreign countries, being able to compete with them, because we have similar or equally good tools to compete with."

A QUICK-OPENING TIRE KETTLE.

THE average tire repair shop doesn't need and cannot afford a large vulcanizer. It costs too much money, takes too much room and can only be used, in the ordinary small repair shop, by allowing tires to accumulate and, of course, the owner of a

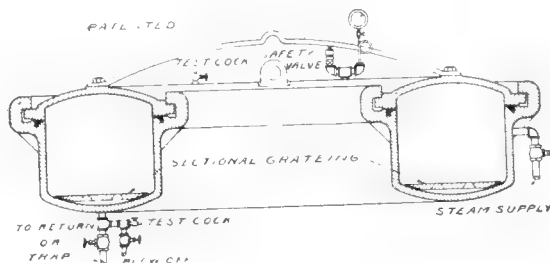
tire doesn't care to wait for tires to accumulate. If he wants a shoe repaired, he wants it right away.

Here is where the small repair kettle, shown in the illustration, becomes useful. This is large enough to take in a single casing 37 inches by 5½ inches, and where the casings are 36 inches x 4 inches, or smaller, it will accommodate two at a time. It occupies



THE AKRON-WILLIAMS RETREADING VULCANIZING KETTLE.

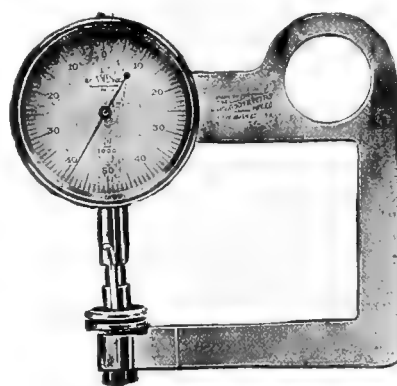
comparatively little room and is economical to handle. The cover is finished around the edge, as will be seen in the cut, with projecting lugs. When the cover is put on the kettle a little turn brings these lugs under corresponding lugs cast in the top of the



CROSS SECTION OF THE KETTLE.

kettle. When the steam is turned on the special wedge-shaped rubber packing keeps the kettle absolutely tight. This is done without a single bolt or nut to tighten. When the casing is cured, the steam is shut off and a little turning of the cover releases the lugs and the work is done. [The Williams Foundry and Machine Co., Akron, Ohio.]

The accompanying illustration shows a gauge for measuring sheet rubber that will allow extremely close gauging. The face of the dial, which is divided by lines for each one-thousandth of an inch, gives the measurement.

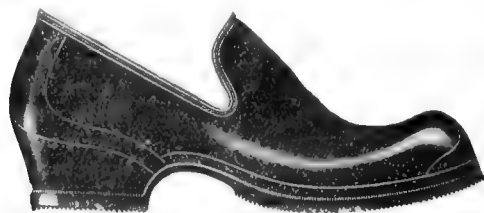


A GAUGE FOR MEASURING SHEET RUBBER.

at any time, so as to start at zero; therefore very accurate readings can be taken. It can be put to a very great variety of uses not possible with others. This gauge has a capacity of from 250 to 300 thousandths, and for ordinary uses will measure one-quarter of an inch or a little over by thousandths. [The Hoggson & Pettis Manufacturing Co., New Haven, Connecticut].

SOME NEW AND ATTRACTIVE APSLEY LASTS.

THE ingenuity of the leather footwear manufacturers, which manifests itself in a continual new variety of shapes and lasts, compels the rubber manufacturer, if he does not wish to be left behind, to make rubbers which will fit the leather shoes. The Apsley Rubber Co., Hudson, Massachusetts, has the reputation of



MEN'S NOBBY LAST.

keeping up with anything the leather footwear makers can produce in the way of lasts. This company has its own last plant, so



MEN'S MILITARY LAST.

that it can equip its factories with new shapes, with the least possible delay. Here are a number of its latest lasts; side views and



MEN'S HUMP LAST.

sole views. Some look a little freakish, but when leather shoes take a freakish turn, rubber shoes must follow:

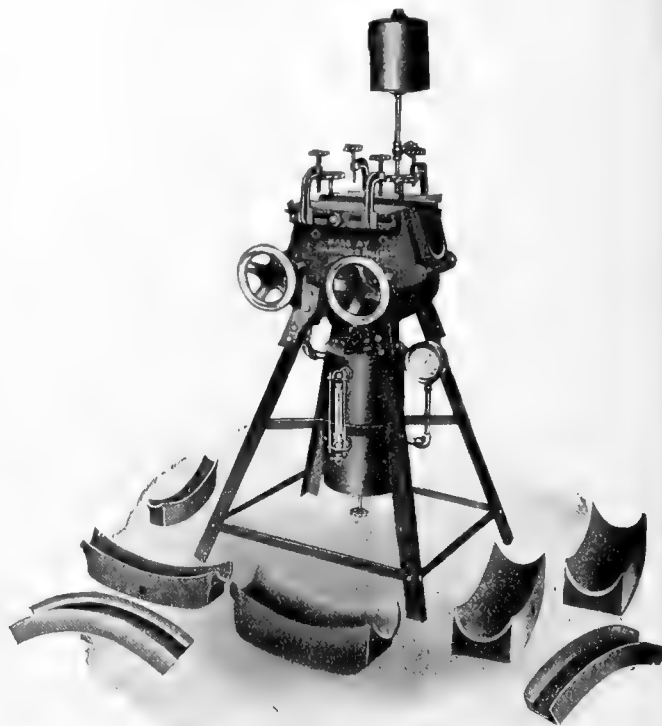


WOMEN'S NOBBY LAST.

The Apsley Rubber Co. claim to be leaders in style. They own and operate a last factory for their exclusive use, and are in position to be ahead in producing styles to fit the new fashions in footwear.

IT REPAIRS ANYTHING IN THE TIRE LINE.

Miller's improved adjustable, sectional vulcanizer will, according to its manufacturer, repair anything in the tire line. When furnished complete it includes boiler, gas burner, tread moulds for bicycle tires, motorcycle casings and automobile casings up to 5 inches in diameter; with various other molds. This vulcanizer will repair a 15-inch section at one heating in any size of bicycle, motorcycle and automobile tire. The great variety of sizes that can be molded by this device is due to the fact that the back side of the vulcanizer is stationary and



MILLER'S IMPROVED VULCANIZER.

the front side is movable, so by tightening or loosening the two hand wheels shown in the accompanying cut, the cavity can be closed entirely or opened up to the size of the largest automobile tire. It is possible to heat only one side of this vulcanizer, when this is desired, by the simple removal of the washer with a hole in it and the substitution of a flat disc washer without a hole. This admits the steam to only one side of the vulcanizer. [Charles E. Miller, Anderson Rubber Works, Anderson, Indiana.]

REVISION OF NAVY SPECIFICATIONS.

THE Manufacturers' Sub-Committee dealing with the above subject, following up its previous action, met in New York on February 13, when further progress was made in the proposed revision of Navy Specifications affecting rubber, as well as of methods of testing. Recommendations and suggestions were prepared, which will, it is understood, be submitted to the government at an early date.

An American Consul in the United Kingdom sends in a consular report (No. 8,049) to the effect that a firm which weaves asbestos fiber in cloth wishes to get into correspondence with American producers of the fiber.

The earliest use of asbestos of which there is any record consisted of spinning this substance into a non-combustible thread. It is stated that asbestos thread can now be spun so fine that 32,000 feet can be made out of a single pound.

News of the American Rubber Trade.

THE NEW YORK RUBBER CO. ELECTS OFFICERS.

At the annual stockholders' meeting of the New York Rubber Co. (New York), held January 30, the following trustees were re-elected for the ensuing year: John P. Rider (chairman of the board), John Acken, William H. L. Lee, Rufus A. Brown, Henry Montgomery, Edward S. Woodward and H. F. Hering.

At a meeting of the board of trustees, held January 31, the following officers were re-elected for the current year: John Acken, president and treasurer; Henry Montgomery, vice-president and secretary, and H. F. Hering, second vice-president.

THE SEAMLESS RUBBER CO. INCREASE CAPITAL.

At the annual meeting of The Seamless Rubber Co. (New Haven, Connecticut), held January 17, the officials of the company were authorized by the stockholders to issue preferred stock to the amount of \$500,000. Practically all of this authorization has been subscribed and paid for.

THE REPUBLIC RUBBER CO. TO ENLARGE PLANT.

As soon as the weather will permit, work will be begun on the new addition to the main shop of the Republic Rubber Co., Youngstown, Ohio, which will be five stories high and 80 by 400 in size. When all of the improvements are completed the shop force will be nearly trebled.

The officers elected for 1912 are as follows: President, Thomas L. Robinson; first vice-president, L. J. Lomasney; second vice-president, L. T. Peterson; secretary, C. F. Garrison; treasurer, M. I. Arms. President Thomas L. Robinson is chairman of the executive board.

CENTRAL CITY RUBBER CO.

The annual meeting of the stockholders of the Central City Rubber Co., Syracuse, New York, was held in that city on January 22. The directors elected for the ensuing year were: David A. Gould, John R. Graham, A. Park Sager and H. F. Smith. The board elected officers as follows: David A. Gould, president; A. Park Sager, vice-president; and John R. Graham, secretary and treasurer. The company is contemplating the issue of \$25,000 additional preferred stock.

CHICAGO RUBBER CLOTHING CO.

A meeting of the board of directors of the Chicago Rubber Clothing Co., Racine, Wisconsin, was held January 16. A dividend of 10 per cent. was declared, to be paid forthwith. A motion was passed that the thanks of the board of directors be tendered to G. G. Bryant, secretary, and E. C. Laughton, treasurer, for the very successful and satisfactory manner in which they had managed the affairs of the company during the past year. The annual stockholders' meeting of the company was held on January 27 and the following officers were re-elected: Hon. Charles H. Lee, president; E. V. Laughton, treasurer; and G. G. Bryant, secretary and manager.

THE WEST BOYLSTON CO. ENLARGES ITS PLANT.

The West Boylston Manufacturing Co., Easthampton, Massachusetts, which manufactures automobile tire fabrics, intends soon to begin the building of an addition to its plant, consisting of an added story to No. 4 mill, 326 feet x 117 feet; and a new three story mill, 272 feet x 117 feet, with a four-story ell-building 140 feet x 120 feet. The addition is planned to increase the capacity of both the spinning and weaving departments.

TYER RUBBER CO. TO BUILD A NEW FACTORY.

The Tyer Rubber Co., Andover, Massachusetts, has purchased a plot of land not far from its present plant, and is planning to build a complete new factory. This new factory will consist of a series of buildings (to cost \$250,000), the main one of which will be 275 feet long, 60 feet wide, and four stories high. The new factory will be so constructed that it can be added to from time to time, as the demands of the business may necessitate. The company expects to remove its press room and box-making department from the present factory to the new one, and to take up other lines of manufacture—particularly the making of automobile tires on an extensive scale. The druggist sundries department will also be materially enlarged. The company thought it better in view of its increased requirements to build a new plant, rather than to attempt to increase the size of its present one. When the new plant is complete, there will be 350,000 square feet of floor space devoted to the manufacture of "Tyrian" rubber goods.

THE WILKIE COMPANY IN A NEW LINE.

The Wilkie Rubber Manufacturing Co., of Lynn, Massachusetts, are manufacturing a new line of druggists' sundries in molded and dipped goods. This is in addition to their old line of mechanical rubber goods in hard and soft rubber and their large business in rod and tubing.

The officers of the company are: Frank C. Spinney, president, of Faunce & Spinney, Lynn, Massachusetts; Philip K. Parker, treasurer; Harvey F. Mitzel, general factory manager and superintendent. The directors are: Jas. M. Marsh, of Geo. E. Marsh Co., Lynn, Massachusetts; Jas. P. Phelan, of Jas. Phelan & Sons, Lynn, Massachusetts, and Frank C. Spinney.

The company has added a large amount of new equipment to its factory. Mr. Mitzel, the manager, has made great changes at the plant and has imbued a spirit of "get there" into the employes that points to a new era of prosperity for the company.

INVENTORS PETITION THE PRESIDENT.

The Inventors' Guild, the president of which is Ralph D. Mershon, 60 Wall street, New York, whose members are practical inventors, recently sent a set of resolutions to President Taft, in which they state that the independent inventor is at a very serious disadvantage in prosecuting his work successfully—for three reasons: First, because of his financial inability to defend his rights in the courts against the large interests, in the second place, because of the protracted delay in legal processes, even where he seeks to defend his rights in the courts, and third, because of the fact that most lines of commercial enterprises are now under a single control, and that control naturally is less interested in new inventions than in maintaining its present supremacy. The combined influence of these three causes, the Guild affirms, tends to discourage the activity of inventors and the successful outcome of their labors. Therefore, they invite the President's attention "to the urgent need of reforms in the patent office, and also in the courts which hear and decide patent causes," and request the President to recommend to Congress such action as will best accomplish the needed reforms.

The San Francisco branch of the Republic Rubber Co., at Youngstown, Ohio, will hereafter be known as the Republic Rubber Co. of California. The Western branch found it more convenient to incorporate under a new company to handle the business on the coast.

CHANGE OF NAME.

The Staunton Dielectrite Rubber Co., Muskegon, Michigan, has changed its name to the Vulcanized Products Co., and its dielectric material, hitherto called "Dielectric," will hereafter be known as "Gohmak."

The Imperial Wire & Cable Co., Ltd., of Montreal, announces that it has acquired the business of The Wire & Cable Co. The new company will continue to operate in Montreal, under the same management.

GEORGE SCHLOSSER A TRIPLE SUPERINTENDENT.

GEORGE SCHLOSSER, who for several years past has been superintendent of the Woonsocket Rubber Co.'s two mills, the "Alice" at Woonsocket, Rhode Island, and the boot mill at Millville, Massachusetts, has now been appointed superintendent of the Candee Rubber Co. mill at New Haven, Connecticut. As he



GEORGE SCHLOSSER.

retains the superintendency of the other two mills, he occupies the unique position of superintending three mills in three different places simultaneously.

This distinction did not come to Mr. Schlosser by chance but purely by reason of his qualifications and equipment. Mr. Schlosser is 47 years old, every one of these years having been spent in a rubber atmosphere. He was born in Milltown, New Jersey, close to the musical hum of a grinding mill and from his earliest days he breathed the fine aroma of the Up-river biscuit. It was natural, therefore, when he reached the ripe age of 17 that he should go to work in a rubber mill. After some twelve years' experience, which were twelve years of comprehensive education in rubber footwear manufacture, he was promoted from his position in the factory at New Brunswick (of which Milltown is a suburb) to the superintendency of the National India Rubber Co., at Bristol, Rhode Island. In 1900 he became assistant superintendent of the "Alice" mill of the Woonsocket Rubber Co. Later he was put in complete charge of the company's Millville mill and soon after he succeeded that master of rubber footwear construction, John Robson, as superintendent of the "Alice" mill, being given the title of general superintendent and having full charge of both these mills, which employ 2,000 people. Now with his extended superintendency covering the Candee mill, he has 3,200 people under his control.

There are two reasons why Mr. Schlosser occupies this unusual position. One is that he understands perfectly how to make rubber footwear, and the other is that he understands equally well how to handle human beings. He is not only an efficient manager but he is a popular "boss."

TRADE NEWS NOTES.

The directors of the Boston Woven Hose and Rubber Co. have declared the regular quarterly dividend of \$2.50 per share on the common stock, payable March 15 to stock of record March 5.

The Fisk Rubber Co., of New York, has recently closed a contract for equipment with the Connecticut Taxicab Co. There are now more than 1,000 taxicabs in New York City equipped with the Fisk Bolted-On Tire and Fisk Removable Rim.

The Wisconsin Rubber Co., Madison, Wisconsin, has increased its capital to \$1,500,000.

The Manufactured Rubber Co. of Philadelphia has declared a regular quarterly dividend of 1½ per cent. on preferred, payable March 1 to stock of record February 24.

Options have been obtained on a manufacturing building with railroad facilities by the Frontier Tire and Rubber Co., a new Buffalo tire concern, which will take over the business of the Frontier Rubber Co. Charles F. Benzing is president and manager of the new company and Charles A. Castor is superintendent. The new company is expected to have a capacity of 1,500 automobile tires a day.

The Goodrich company has arranged to open salesrooms at 110 Cedar street, Spokane, Washington, about March 15. This agency will be in charge of R. H. Rowe, a practical factory man.

The general manager of the Motz Tire and Rubber Co., Akron, Ohio, states that one of the first sets of their cushion tires has traveled 24,000 miles, and is still on the road. He adds that he knows of several sets of their tires that have completed 20,000 miles, and are still in good condition.

William Q. Cramp has been appointed manager of the new branch opened by the Kelly-Springfield Tire Co., at Buffalo, New York, February 1. Mr. Cramp was an officer in the Seneca Rubber Co. and moves into his new connection as a result of the Kelly-Springfield Tire Co. absorbing the Seneca Rubber Co.

The Chrysolite Asbestos Company has filed papers with the Secretary of the State of Vermont to mine, manufacture and ship asbestos and its products from a mine or mines in Lowell and vicinity. The capital is \$2,000,000 with 8,000 shares. The enterprise is given impetus by the proposed new railroad to connect the mines in Lowell and Eden with the markets. The papers are signed by William G. Gallagher of Lowell, Frank A. Walker and Willard Walker of Barre.

A paragraph has been going the rounds of the daily press to the effect that the United States Rubber Co. is about to put into operation a profit-sharing plan somewhat similar to that adopted by the United States Steel Co. It is quite true that the directors of the rubber company have given considerable thought to such a plan, but nothing definite has yet been decided upon, and no announcement is likely to be made for a number of weeks.

One of the daily papers, talking about the rubber situation, refers to "the time when crude rubber sold up to \$5 a pound." Just what rubber this was and when it was sold is not stated. Evidently it was some variety of synthetic rubber.

The Springfield Tire and Rubber Co., Springfield, Ohio, on December 7, 1911, filed certificate increasing their capital stock from \$50,000 to \$150,000.

WANTS CLOGS AND FOOT HOLDS.

AN American consul sends in a report (No. 7944) to the effect that a merchant in a Mediterranean town is anxious to make arrangements for the agency of a certain type of American rubber shoe, which is not obtainable in his market. He describes the men's shoe as being very low, with just sufficient edge to hold to the leather shoe, and the women's shoe as very light in weight and without heels. Obviously, this man wants low clogs or Eversticks for men, and footholds for women, and it ought to be quite easy to supply his wants.

PERSONAL MENTION

Robert L. Dean, who was formerly secretary of the Telman-tepec Rubber Culture Co., is now acting as secretary and treasurer of the Santa Cecilia Sugar Co., organized for the purchase and development of the sugar plantation in Cuba, with a New York office at 82 Beaver street.

George N. Martin has been made manager of the new Firestone Tire and Rubber Co.'s branch in Minneapolis, Minnesota. He was connected with the St. Louis branch for some time.

John H. Kelly, for nine years manager of the Chicago branch of the Republic Rubber Company, has been appointed general sales manager of the automobile tire department of that company, and has taken up his new duties at the main office in Youngstown, Ohio. Mr. Kelly has been directly connected with the tire business for fourteen years, and prior to that time he was actively engaged in the bicycle business.

MR. BARUCH LEAVES THE INTER CONTINENTAL BOARD

H. B. Baruch has resigned as a director of the Intercontinental Rubber Co., and Felix Rosen, of Hayden, Stone & Co., has succeeded him. Officials of the company are quoted to the effect that Mr. Baruch's resignation did not mean that he had closed out his interest in Intercontinental Rubber. He is said still to retain a minority interest.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks, ending February 24:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.
Last Dividend, January 31, 1912—27¢.]

Week February 3	Sales 2,300 shares	High 46¾	Low 45¼
Week February 10	Sales 1,110 shares	High 46	Low 45½
Week February 17	Sales 800 shares	High 46	Low 45¾
Week February 24	Sales 700 shares	High 45½	Low 45½
For the year—High, 49, January 3; Low, 45½, February 1.			
Last year—High, 48½, Low, 30.			

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, January 31, 1912—27¢.

Week February 3	Sales 900 shares	High 110¾	Low 109
Week February 10	Sales 1,000 shares	High 109½	Low 109½
Week February 17	Sales shares	High	Low
Week February 24	Sales 325 shares	High 110	Low 109½
For the year—High, 111, January 11; Low, 109, January 30.			
Last year—High, 115½, Low, 104.			

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, January 31, 1912—11½¢.

Week February 3	Sales shares	High	Low
Week February 10	Sales shares	High	Low
Week February 17	Sales shares	High	Low
Week February 24	Sales shares	High	Low
For the year—High, 76½, January 8; Low, 75, January 23.			
Last year—High, 79; Low, 66.			

SIX PER CENT. TRUST GOLD BONDS, \$19,000,000.

Outstanding of the 1908 issue of \$20,000,000.

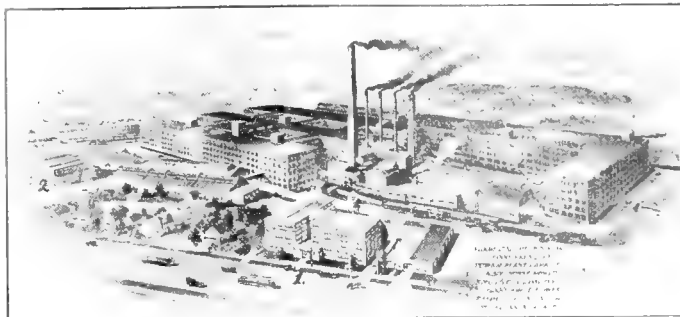
Week February 3	Sales 61 bonds	High 105	Low 104¾
Week February 10	Sales 68 bonds	High 105	Low 104¾
Week February 17	Sales .. bonds	High ...	Low
Week February 24	Sales 11 bonds	High 105	Low 104¾
For the year—High, 105, February 24; Low, 103¾, January 6.			
Last year—High, 105; Low, 101¾.			

KANSAS FACTORY LAW VOID.

THERE was a statute passed in Kansas in 1893 providing that every corporation doing business in that State, with the exception of surface railway companies and corporations producing farm and dairy products, should pay its employes the wages earned each week, not later than Friday of that week. A test has recently been made of the constitutionality of this law, and it has been adjudged, first by the district court, and later by the Supreme Court, to be unconstitutional and void, coming under the head of class legislation. As a matter of fact, the law has been practically a dead letter since the day of its enactment.

ADDITIONS TO THE GOODYEAR TIRE AND RUBBER CO.'S PLANT.

THE GOODYEAR TIRE AND RUBBER CO., Akron, Ohio, has recently made some noteworthy additions to its plant in order to be ready for a greater output for the coming season. The new office building, which is indicated by the Fig. 1 in the accom-

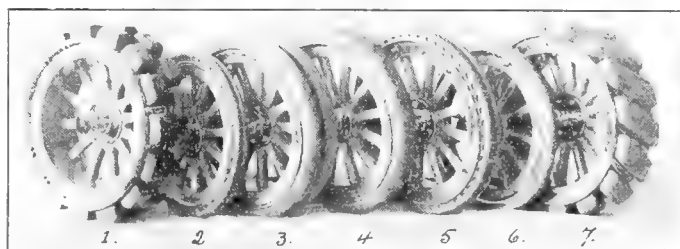


GOODYEAR TIRE AND RUBBER CO., AKRON.

1. New Office Building. 2. New Laboratory.

panying illustration, is said to be a model of convenience. The new laboratory (marked "2") will be completed in the early summer and another large factory building will be erected this summer. The factory is expected to have a capacity of 3,500 automobile tires, 30,000 pounds of motor truck and carriage tires and 500 motorcycle tires per day. During the past year the company has added buildings aggregating 400,000 feet of floor space, making a total of nearly 1,000,000 square feet of floor space for their 1912 operation.

Here is an interesting photograph showing seven of the different kinds of solid truck tires made by this company.



GOODYEAR SOLID TRUCK TIRES FOR 1912

- No. 1. Goodyear individual block tire. Solid, demountable tire for heavy duty service.
- No. 2. Goodyear Motz high efficiency tire.
- No. 3. Goodyear solid demountable tire.
- No. 4. Goodyear metal base tire.
- No. 5. Goodyear-Motz fire department tire.
- No. 6. Goodyear-Motz demountable truck tire.
- No. 7. Goodyear diagonal block tire.

WHERE PAPER IS AS GOOD AS RUBBER.

The Swinchart Tire and Rubber Co., Akron, Ohio, has adopted a method of advertising its tires which is effective, and at the same time economical in rubber. It has made for display purposes a number of large tires, 5 feet in diameter and 10 inches thick, exactly reproducing its motor tires. Obviously tires of this size made in the ordinary way would consume a valuable quantity of rubber, but these tires are made of *papier maché* and for window and other displays are quite as serviceable as if compounded of the finest Pará.

CANADIAN CODE FOR RUBBER-COVERED WIRE.

At a conference held in Toronto in January, at which the representatives of the Canadian rubber-covered wire manufacturers and electrical inspectors were present, it was agreed that on and after January 1, 1913, only rubber-covered wires and cables having insulation in accordance with the National Electrical Code, 1911 specifications, would be made, as required by electrical inspection departments throughout the Dominion of Canada.

NEW INCORPORATIONS.

ADVANCE RUBBER Co., January 29, 1912, under the laws of New York; authorized capital \$150,000. Incorporators: F. H. S. Hyde, Englewood, New Jersey; Adolph Lublitz, 546 Broadway; and Claude Pinney, 30 West Forty-fourth street—both of New York. The company has a three-story factory 40 x 100 feet at Eighteenth street and Eighth avenue, Brooklyn, New York, where its office will be maintained for the present. The officers of the company are F. H. S. Hyde, president; Claude Pinney, vice-president; W. Irving Glover, secretary and treasurer; and L. R. Pratt, general superintendent. The company intends to make a one-cure wrapped tire and a pure gum tube.

American Spring Tire Co., January 25, 1912; under the laws of Delaware; authorized capital, \$500,000. Incorporators: Eugene Hogue, 4151 Indiana avenue; Herman Crampy, and Charles E. DeVall, all of Chicago, Illinois. To manufacture spring cushion tires and automobiles.

Atlas Raincoat Co., January 24, 1912; under the laws of New York; authorized capital, \$2,000. Incorporators: Morris Robinson, 44 East Broadway, Joseph and Beckie Bick, both of 719 East Ninth street—all of New York. Location of principal office, New York. To manufacture raincoats and rubberized goods.

The Bison Rubber Co., January 22, 1912, under the laws of New York; authorized capital, \$5,000. Incorporators: J. R. Heintz, Carl W. Heintz, and Robert S. Barnard—all of Buffalo, New York. This concern was formerly known as the Republic Tire Agency and will continue to sell Republic tires in Buffalo and western New York. Principal office is at 908 Main street, Buffalo.

Colonial Rubber Specialties Co., February 15, 1912; under the laws of New York; authorized capital, \$10,000. Incorporators: George M. Port, 4 West One Hundred and First street, New York; Edward F. Aird, 551 Van Courtland Park avenue, Yonkers, New York; and Sanford Newman, 2159 Mapes avenue, New York. Location of principal office, New York. To deal in auto supplies, etc.

Diamond Rubber Co., January 30, 1912; under the laws of New York; authorized capital, \$200,000. Incorporators: Max L. Friedman, 81 Reade street; Jacob Davis, 468 Thirteenth street, Brooklyn, New York; and David Davis, 37 Wall street, New York. Location of principal office, New York. To deal in shoes, rubbers, etc.

The Durst Manufacturing Co., February 7, 1912; under the laws of New York; authorized capital, \$15,000. Incorporators: Max, Henry and Sarah Durst, all of 1525 Fulton avenue, Bronx, New York. Location of principal office, 88 Reade street, New York. This company was formerly the National Rubber Co., having changed its name at the request of the National India Rubber Co. of Bristol, Rhode Island, in order to avoid any confusion in the trade, because it was too similar to theirs. The new company has increased its capitalization \$10,000 and is prepared to manufacture plumbers' rubber goods, brass sundries, and all kinds of rubber, fibre paper and leather washers.

The Expansion Spring Rim and Tire Co., January 20, 1912; under the laws of Massachusetts; authorized capital, \$500,000. Incorporators: Charles O. Doyle, Everett; Harris L. McNeill, Waltham; and Orrie T. Bowman, Everett—all of Massachusetts. To manufacture and sell auto vehicle wheels and tires.

Gotham Raincoat Co., February 3, 1912; under the laws of New York; authorized capital, \$5,000. Incorporators: Solomon and Fannie Schiller—both of 604 West One Hundred and Twelfth street, and Abraham Smith, 133 Bay Twenty-fifth street, New York. To manufacture men's and women's raincoats at No. 11 West Seventeenth street, New York City.

Gough Manufacturing Co., Inc., February 5, 1912; under the laws of New York; authorized capital, \$2,500. Incorporators: William R. Gough, George W. Greene and Leonard Black—all of 313 East Twenty-second street, New York. To manufacture rubber hose, plumbers' supplies, and brass valve couplings.

Location of principal office, 313 East Twenty-second street, New York.

Josephson Rubber Co., January 27, 1912; under the laws of New York; authorized capital, \$21,000. Incorporators: Charles Josephson, 854 West One Hundred and Eighty-first street; Haskell A. Josephson, 740 Riverside Drive, and Felix S. Davidson, 2881 Broadway—all of New York. Location of principal office, New York. To deal in waterproof clothing, rubber goods, etc.

H. Levin Shoe Co., February 6, 1912; under the laws of New York; authorized capital, \$14,000. Incorporators: Ida Levin, 1565 Madison avenue, Louis Levin, 1493 Madison avenue, and Jacob Leibowitz, 548 West One Hundred and Sixty-fourth street—all of New York. Location of principal office, New York. To deal in shoes, rubbers, etc.

The Motor Supply and Tire Co., January 25, 1912; under the laws of Ohio; authorized capital, \$1,000. Incorporators: Earl C. Gargett, Robert B. Gargett and Robert J. Holbrook. To retail and sell automobile supplies.

The Ohio Punctureless Tire Co., January 16, 1912; under the laws of Ohio; authorized capital, \$50,000. Incorporators: Elmer O. Pettit, William Moore and C. N. Bowen.

The Raincoat Kings, Inc., February 19, 1912; under the laws of New York; authorized capital, \$3,000. Incorporators: Herman Goldberg, 74 East One Hundred and Sixteenth street, New York; Sam Grobeld and Jacob Cooper, both of Brooklyn, New York. Location of principal office, Brooklyn. To manufacture rubber clothing.

Standard Tire and Rubber Co. of Springfield, February 6, 1912; under the laws of Massachusetts; authorized capital, \$10,000. Incorporators: William P. Cronin, James S. Waddell, Boston, Massachusetts, and Wayne E. Hughes, Springfield, Massachusetts. To manufacture and deal in all articles composed partly of rubber, and automobile sundries, etc.

The Troy Rubber Tire Co., January 17, 1912; under the laws of Ohio; authorized capital, \$10,000. Incorporators: Jacob Sweigart, Sherman LeBlond and Cyrus S. Petry. To manufacture and deal in rubber tires, machines to make, attach and detach wheel tires and other kindred machines and articles.

Vulcanized Products Co., January 8, 1912; under the laws of Delaware; authorized capital, \$200,000. Incorporators: Henry P. Crowell, Robert and John Stuart, all of 1600 Railway Exchange, Chicago, Illinois. To manufacture a rubber compound for the purpose of insulation.

CUBAN DUTIES REDUCED ON AMERICAN RUBBER GOODS.

According to a recent ruling of the Treasury Department of Cuba, American rubber goods, which are made in connection with cotton or silk and wool enter into that country at a lower rate of duty than has hitherto been the case. The following paragraph is from the "Cuba Review":

"During the preparation of Tariff Series No. 27, Customs Tariff of Cuba, the question arose whether waterproof fabrics, when originating in the United States, were entitled, by virtue of the reciprocity treaty of December 11, 1902, to the reduction provided for manufactures of the component fibers (30 per cent. in the case of cotton and 40 per cent. in the case of silk and wool), or to the general reduction of 20 per cent. provided for articles not specifically named in the treaty. An inquiry was accordingly instituted, through diplomatic channels, as to which treatment was actually applied.

"In reply, it is pointed out by the Treasury Department of Cuba, under date of November 23, 1911, that heretofore, by virtue of a precedent established in the custom house of Havana, a reduction of 20 per cent. was applied, but that in the future a reduction of 30 per cent. will be accorded to waterproof fabrics of cotton, and of 40 per cent. to waterproof fabrics of wool or silk. The reduction applies to all articles coated with rubber on one or both sides, as well as to those with an interior lining of rubber."

TRADE NEWS NOTES

The marble sky scraper of the United States, which is being erected at the corner of Broadway and New York, is progressing rapidly, and the company hope to be in its new home by the first of July. The estimated cost of the building, when the plans were made was \$750,000, and the ground lease, which runs for 21 years, is said to be \$40,000 per year.

The sanitary drinking cup has invaded the rubber factory. The employees of the Fairfield Rubber Co., Fairfield, Connecticut, have asked the company to provide individual drinking cups, which has been done. Not a bad idea for other factories to adopt.

Rubber bumpers between the frame and body of an automobile are being adopted by makers of high-grade cars. They prevent body squeaks and other unnecessary noises, and these little cushions of rubber not only produce silence, but reduce the shock of impact in hitting holes, rails and rough spots, as well as lessening the wear and tear of bodies under prolonged hard usage.

A count of tires in cars displayed at the automobile shows gave Firestone 47 sets at the New York shows and 25 sets at the Philadelphia show. Many of these vehicles were equipped with the Firestone quick-removable rim enabling the driver to make tire changes on the spot.

The Goodyear Tire and Rubber Co., Akron, Ohio, has a set of tires which probably has been nearer the North Pole than any other—considering the fact that neither Commander Perry nor Dr. Cook made any profession of having approached the pole in an auto-car. This set of tires was on a car used in a trip from San Francisco to Klondike, and back to Denver.

Officers of the Rubber Manufacturers' Mutual Insurance Co. for 1912, are as follows: President, Arthur H. Lowe; vice-president, E. B. Page; secretary and treasurer, Benjamin Taft; assistant secretary and treasurer, W. B. Brophy. The following are directors: Arthur H. Lowe, E. B. Page, George H. Hood, Marcus Beebe, C. C. Converse, E. H. Clapp, F. W. Pitcher, W. B. Plunkett, C. E. Stevens, E. S. Williams, George B. Hodgman, C. T. Plunkett, B. G. Work and Benjamin Taft.

The Goodyear Tire and Rubber Co., Akron, Ohio, are about to engage in the manufacture and sale of a complete line of molded goods, balata belting and asbestos packing.

SHARPENING THEIR WITS.

THE best help you can give a man is to help him to use his own capacities. That is what the Republic Rubber Co., Youngstown, Ohio, is doing with its employees. Last summer it offered four cash prizes, aggregating \$300, for ideas. First and second prizes in class one were awarded on the best suggestions for improvements in existing machines, processes or methods of manufacture in use by the company. In class two, first and second prizes were offered for the best original plans for new machines, processes or methods of manufacture. These contests were open to any employee of the company except general officers.

The awards were made in December, and so much interest

was shown by the employees that the company intends to hold many more such contests.

PROFESSIONAL FACTORY GUIDES.

It is obvious that one of the best methods of advertising the product of a factory, is to take people through the factory, and let them see the product made—that is, where the people taken through the factory are sufficiently interested in that special article to make it worth while; but for the president or the general manager to take his time every day or two to show visitors through the plant is something of a burden.

The Goodyear Tire and Rubber Co., Akron, Ohio, has adopted a plan which other manufacturers might very well follow. They have selected two or three of their employees who are thoroughly familiar with all the phases of manufacture, and who also have the ability to explain the processes intelligibly, and they have appointed them as official guides to escort visitors through their factory. In this way, the visitors get all the attention they desire, and the officials of the company are able to prosecute their more important labors.

A RUBBER MAYOR.

John L. Fisk, mayor of Middletown, Connecticut, is a bookkeeper in the office of the Goodyear Rubber Co. and his official honors have not altered his efficiency as a bookkeeper. If anyone should be inclined to inquire what special qualifications a rubber bookkeeper had for the mayoralty for a city, the proper answer would be that a dependable rubber bookkeeper ought to make a vastly better mayor than the professional politicians who usually get those positions.

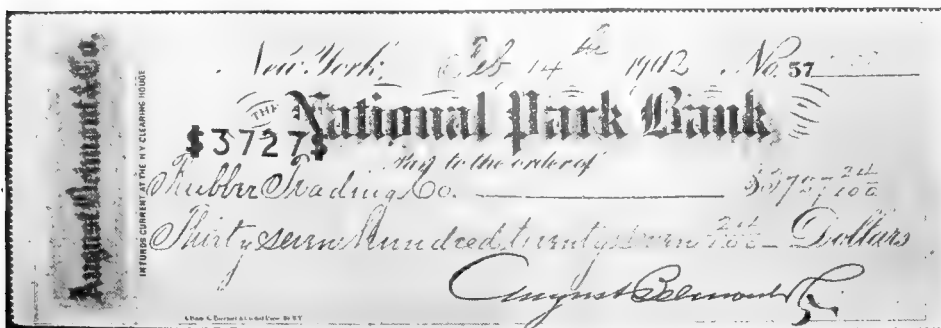
HENRY BROWN.

HENRY BROWN, an old employe of the National India Rubber Co., at Bristol, Rhode Island, and father of James Brown, a foreman there, died at his home, 7 Collins street, Bristol, on February 10, after a long illness. He is survived by three sons, James, John and Edward; two daughters, and his widow. The funeral was held at St. Mary's Church, Bristol, February 12.

LARGEST DELIVERY OF RUBBER YET MADE.

THE accompanying photographic cut of a check, paid by August Belmont & Co. to the Rubber Trading Co., is interesting as showing the largest commission ever paid on a sale of rubber for a single delivery. This was for a lot of 1,238 cases—about 188 tons—bought February 7 by The B. F. Goodrich Co., of Akron, Ohio. There have been other sales of rubber of considerably larger volume, but in all of those cases, deliveries were to extend over a period of time. This is said to have been the largest sale of rubber for one delivery ever made in this country. It came from the quantity, estimated at about 5,000 tons, that was held by a syndicate in Brazil, generally referred to as "valerized rubber." There are about 2,300 tons of this rubber still held back in Brazil and England, but the sale referred to about clears out all the syndicate rubber held in this port. It is believed to have cost the syndicate about \$1.40 per pound. While the selling price is not given out either by the buyer or the seller, it is safe to say that it was not very far from \$1.10 per pound. That was a little higher than the market price on the day of sale, but ever against that must be taken the fact that this rubber has been in storage since April, 1910, and is considerably drier than new offerings.

There is some conjecture as to the amount of loss suffered by the syndicate, but it would be a good Yankee guess, taking into consideration all the features of the case—the cost of the rubber when bought, the shrinkage, expense of transportation, the banking expenses, and deducting the export duty—that this sale would represent a loss of between \$50,000 and \$60,000.



Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED JANUARY 2, 1912.

- N** 1,013,723. Wheel. W. A. Byam, Chicago, Ill.
 1,013,724. Vehicle-wheel. H. D. Jones, Glasgow, Scotland.
 1,013,725. Vehicle-wheel. T. B. Jones, Kew-Forest, Wis.
 1,013,726. Detail of a tire for pneumatic tires. W. L. Gonthorn, Natick, Mass.
 1,013,387. Vehicle-rim. James E. Hale, assignor to the Goodyear Tire & Rubber Co.—both of Akron, Ohio.
 1,013,554. Pneumatic wheel. J. W. Livingston, assignor of one-half to John Noble—both of Livingston, Wis.
 1,013,564. Combined tire-holder and trunk. J. V. Pratzner, New Haven, Conn.
 1,013,575. Eraser. J. V. Washburne, Fulton, N. Y.
 1,013,596. Tire. A. Freschl, Chicago, Ill.
 1,013,716. Vulcanizer. A. Adamson, Akron, Ohio.

Trade Marks.

- 40,986. Michelin Tire Co., Milltown, N. J. A representation of the words "Pneumatic tires for automobiles."

ISSUED JANUARY 9, 1912.

- 1,013,949. Spring-felly automobile wheel. T. F. O'Brien, Highmore, S. D.
 1,013,952. Foot-cushion. R. W. Jones, Needham, Mass., assignor to Essex Mfg. Co., Kittery, Me., and Lynn, Mass.
 1,013,994. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.
 1,013,995. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.
 1,013,996. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.
 1,013,997. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.
 1,013,998. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.
 1,013,999. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.
 1,014,004. Bottle-holder. C. G. Irwin, Ardmore, Pa.
 1,014,007. Tire. G. W. Kitterman, Berwyn, Ill., assignor of one-half to M. D. Matteson, Chicago, Ill.
 1,014,075. Vehicle wheel-tire. J. H. Lorimer, Philadelphia, Pa.
 1,014,131. Vehicle-wheel. E. A. Dennis, assignor to T. A. McGrath—both of Providence, R. I.
 1,014,192. Quick-opening door for vulcanizers. J. K. Williams, Akron, Ohio.
 1,014,233. Practice-ball. C. B. W. Kip, Montclair, N. J.
 1,014,244. Cushion-wheel for vehicles. J. F. Mitchell, Topeka, Kan.
 1,014,260. Dating-stamp. Elmer H. Sanborn, Los Angeles, Cal.
 1,014,318. Cushion-tire. Myron C. Merriman, Detroit, Mich.
 1,014,345. Vehicle-tire. George E. Starn, Camden, N. J., assignor to H. M. Dover, Palmyra, N. J.
 1,014,357. Antiskidding tire. G. J. Adam, Chicago, Ill.
 1,014,358. Antiskidding device for tires. G. J. Adam, Chicago, Ill.
 1,014,386. Hose-nozzle. H. Gibbs, assignor to W. D. Allen Mfg. Co.—both of Chicago, Ill.
 1,014,458. Protector for tires. D. H. Gabriel, Adeline, La.
 1,014,464. Reinforced inner tube for pneumatic tires. F. H. Hall, Norton Lindsey, England.
 1,014,465. Device for applying hair-tonics. I. O. Hall, Calgary, Alberta, Canada, assignor of one-half to H. C. Strange, Bassano, Canada.
 1,014,505. Adjustable hat or cap. C. I. Minkoff and L. Kronthal, New York.
 1,014,558. Resilient wheel. E. C. Bass and E. S. Hough, London, England.
 1,014,594. Dental cleaning device. C. B. Hains, Norwood, N. Y.
 1,014,637. Nozzle for water-bags. E. Over, assignor of one-half to D. Kellaher—both of Portland, Ore.
 1,014,613. Protective covering for pneumatic tires. A. H. Shoemaker, Seattle, Wash.

Reissues.

- 13,352. Vacuum cleaner. C. A. Dillon, assignor to The United Electric Co.—both of Canton, Ohio.

Trade Marks.

ISSUED JANUARY 16, 1912.

- 1,014,644. Resilient wheel. R. E. Ellis, Riddrie, Glasgow, Scotland.
 1,014,694. Vehicle wheel. A. Y. Davis, Kansas City, Mo.
 1,014,718. Electric coupling. I. H. Parsons, Kibworth Harcourt, near Leicester, England.
 1,014,851. Tire-plug. P. A. Rosenthal, New York.
 1,014,858. Spring-wheel. R. Stock, New York.
 1,014,873. Waterproof overshoe and legging. E. L. Hall, Providence, R. I.
 1,014,912. Tread for pneumatic tires. A. H. Shoemaker, Portland, Ore.

- 1,014,918. Beiting. L. A. Subers, Cleveland, Ohio.
 1,014,939. Hand attachment serviceable for swimming. J. Boman, Annandale, Sydney, New South Wales, Australia.
 1,015,035. Tire for vehicle-wheels. B. F. Lare, Philadelphia, Pa.
 1,015,036. Vehicle-tire. B. F. Lare, Philadelphia, Pa.
 1,015,037. Vehicle-tire. B. F. Lare, Philadelphia, Pa.
 1,015,038. Tire. B. F. Lare, Philadelphia, Pa.
 1,015,048. Holder for fire-extinguishers. W. J. A. Manning, Detroit, Mich.
 1,015,064. Vehicle-wheel. S. Oldham, Philadelphia, Pa.
 1,015,113. Tire. A. E. Winter, Franklin, Pa.
 1,015,133. Tire-filling compound. H. J. Breeze, Portland, Ore.
 1,015,163. Localizing-stethoscope. D. O. Fosgate, Chicago, Ill.
 1,015,178. Tire-protector. R. C. Harris, Pittsburgh, Pa.
 1,015,186. Vehicle-wheel. W. H. Humfeld, Kansas City, Mo.
 1,015,238. Vehicle wheel and tire. S. N. McClean, Cleveland, Ohio.
 13,364. Spring vehicle-wheel. E. Murray, assignor to The Resilient Motor Wheel Syndicate, Ltd.—both of London, England.

ISSUED JANUARY 23, 1912.

- 1,015,311. Steam-hose. E. E. Gold, New York.
 1,015,472. Combined tire and trunk holder for automobiles. A. U. Campbell, Toledo, Ohio.
 1,015,451. Spring-tire for vehicle wheels. A. B. McQueen, Dunnellon, Fla.
 1,015,468. Composition of matter. N. F. Avery, assignor of one-half to C. Thomas—both of Brockton, Mass.
 1,015,500. Toe case, puff, or the like for boots and shoes. G. Looms, Market Harborough, England.
 1,015,545. Creeping and antiskidding device. W. S. Craig, St. Marys, Ohio.
 1,015,599. Pneumatic tire. G. R. Vaughan, Jefferson City, Mo.
 1,015,642. Safety-tread. H. C. Seipp, Pittsburgh, Pa.
 1,015,682. Suspension spring for vehicles. L. P. Constant Jacquet, Neuilly-sur-Seine, near Paris, France.
 1,015,690. Automobile-tire. J. E. Knauss and C. Phinney, Healdsburg, Cal.
 1,015,760. Vehicle-wheel. A. Mosso, S. & P. Giovanetti, San Francisco, Cal.
 1,015,718. Flexible pipe connection. T. Smith, Chicago, Ill.
 1,015,761. Resilient wheel. M. E. Knight, Framingham, Mass.

Designs.

- 42,103. Pneumatic-tire tread. G. W. Beldam, Ealing, England.
 42,104. Pneumatic-tire tread. G. W. Beldam, Ealing, England.

Trade Marks.

- 59,771. Kabus Rubber Co., New York. The word *Kosmos*. For rubber erasers and rubber bands.
 59,772. Kabus Rubber Co., New York. The word *Acme*. For rubber erasers and rubber bands.

ISSUED JANUARY 30, 1912.

- 1,015,812. Patient supporter. C. Madsen, Buffalo, N. Y.
 1,015,862. Vehicle-wheel. A. Williams, St. Louis, Mo.
 1,015,991. Electric heating pad. W. S. Clark, assignor to General Electric Co.—both of Schenectady, N. Y.
 1,016,075. Feed-bag. G. Kowalsky, McDowell, W. Va.
 1,016,096. Manufacture of resilient tires. G. D. Rose, Manchester, England.
 1,016,122. Inner tube for tire-casings. W. C. Beckwith, Fostoria, Ohio.
 1,016,128. Artificial tooth plate. A. C. Buttman, Grand View, Iowa, assignor of one-half to A. J. Greiner, Louisa County, Iowa.
 1,016,137. Waterproofing compound for leather. P. F. Frost, Silverdale, Wash., assignor to Amanda Frost, Victoria, Canada.
 1,016,173. Hose-nozzle and sprayer. R. Porter and Louis Krueger, Neodesha, Kan.
 1,016,200. Wheel for motor-vehicles. A. T. Beeler, Kansas City, Mo.
 1,016,217. Tire-setter. C. A. Devero, Springfield, Ill., assignor to The Keokuk Hydraulic Tire Setter Co.
 1,016,244. Boxing device. G. Troxler, Newark, N. J.

Designs.

- 42,121. Rubber finger-pad for massage devices. C. E. Thompson, assignor to Luxury Sales Co.—both of Troy, N. Y.

Trade Marks.

- 58,863. Antoine Ascheri, Neuilly-sur-Seine, France. The words *Le Monstre*. For pneumatic tires, covers, etc.
 60,180. The Vulcanized Rubber Co., New York. The word *Aviator*. For rubber combs.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENTS SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent Specification, the title of the invention, which in the case of these listed below was in 1911.

*Denotes Patents for American Inventions.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 17, 1912.]
21,497. Tread bands for tires. P. Cross, 116 Abchurch Lane, London.

21,571. Expansible bottle stoppers. M. L. Malz, Plauen, Germany.
21,591. Treating warps with rubber rollers. P. Turlur, 5 Rue Richepanse, Paris, France.

21,634. Process of treating rubber in vacuum chamber. J. S. Da Costa, Belem, Brazil, and R. Bridge, Castleton, Lancashire.

21,765. Improvements in air-tubes and chambers of tires. W. A. Sankey, 16 Great Eastern st., London.

*21,830. Invalid's mattress of waterproof material. M. Ryan, 1524 Boulevard, Sioux City, Iowa, U. S. A.

21,919. Tire repairing appliances. A. S. Bowley, 40 Werter Road, Putney, London.

21,947. Improvements in eraser holders. H. H. Yelf, Southsea, Portsmouth.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 17, 1912.]

22,144. Rubber rods for typewriters. H. H. Yelf, Southsea, Portsmouth.

22,201. Apparatus for extracting or cleansing rubber. L. Norzagaray, 35 Hargrave Mansion, Upper Holloway, London.

22,314. Elastic cords and bodies for tires. O. Grenier, 100 Avenue Victor Hugo, Boulogne, France.

*22,327. Improvements in medical plasters. E. M. Pond, Rutland, Vt., U. S. A.

22,413. Rubber valve packing. W. H. Greator, 107 Ivanhoe Road, Camberwell, London.

22,415. Rubber tapping tools. W. E. F. De Lacy, Mombasa, East Africa, and W. A. Merrick, 5 Carlisle st., Edgware Road, London.

22,419. Compressed air or gas containers. Michelin & Co., Clermont Ferrand, France.

22,502. Rubber strips in knife cleaning machines. J. C. L. Schweiss, 216 High st., Harlesden, London.

22,607. Rubber sockets for nozzles of hose. J. T. Reeve, Hounslow, Middlesex.

22,632. Improvements in rubber tapping appliances. W. Clarkson, Lesmahagow, Scotland.

22,712. Improvements in tire jackets and covers. P. Elmer, Penarth, Glamorganshire, Wales.

22,716. Process for rubberizing hides, etc.. Hyde Tyre & Motor Syndicate, No. 30 Belford Row, and R. Withey, 103 Verney Road, South Bermondsey—both in London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 24, 1912.]

22,773. Elastic cores and bodies for tires. J. H. Knight, Barfield, Farnham, Surrey.

22,784. Improvements in pneumatic tires. R. T. Smith, 111 Lovely Lane, Warrington, Lancashire.

22,866. Rubber strips for show-cases, etc. G. Obrist, W. Obrist and A. Obrist, Fluhmühl, Luzern, Switzerland.

22,906. Device for repairing hose pipes. E. M. Potter, Thame.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 31, 1912.]

23,057. Pressure gauges for pneumatic tires. A. Puschmann, 7 Albusse-rolle, Breslau, Germany.

23,193. Pressure gauges for pneumatic tires. E. Ellis, 40 Harbord Road, Sheffield.

23,225. Massage appliances. J. F. Ray, Bolton-le-Sands, Carnforth.

*23,398. Tools for replacing elastic tires. B. Dahl, 533 N. E. First st., Minneapolis, and P. C. Bell, Milburn, N. J.—both in U. S. A.

THE FRENCH REPUBLIC.

PATENTS ISSUED (With Dates of Application).

430,533 (May 19, 1911). Couinaud. Elastic tire for wheels of vehicles of all kinds, including aeroplanes, locomotives, etc.

430,462 (April 6). B. Fuchs. Appliance for attaching moveable rubber heels without the use of screws, nails, glue, etc.

430,511 (May 10). Société Internationale "Asia." Process for separation of resin from rubber in products containing both substances.

430,532 (May 22). W. W. Wildman and J. Christy. Treatment of vulcanized rubber.

430,607 (June 6). F. Wette. Rubber soles.

430,657 (June 7). A. Heinemann. Process for preparation of isoprene.

430,658 (June 7). A. Heinemann. Process for making rubber by means of isoprene.

430,703 (June 8). W. H. Goodfellow and W. A. MacClain. New filling substance for tires and process for its insertion.

430,752 (May 24). R. G. Hartle. Improvements in covers for pneumatic tires.

430,828 (June 9). W. Kirchner. Improvements in balloons, and particularly in fabrics for gas bags.

430,904 (June 12). L. P. Ferrere. Indeformable pneumatic container for compressed air in sections of tires, permitting the suppression of air chambers.

430,994 (June 6). M. Castehna. Supplementary pneumatic tires for wheels.

430,881 (June 7). U. Chandeyssin. New elastic product.

430,945 (March 29). E. Audin-Lemoine. Foot wear with pneumatic soles.

431,023 (June 13). W. G. Boonzaier. Wheel rim and tire.

431,073 (June 14). E. Decloumont. Pneumatic tire.

431,098 (June 15). E. Meunier de St. Laurent. Product for automatically stopping perforations of air chambers in pneumatic tires.

431,143 (June 16). J. J. Ryan. Armed covers for wheel tires.

431,237 (April 26). A. Boerner. Protective cover for rubber tires.

431,147 (June 16). Madame L. Lepaulard. Improvements in method of mounting covers on pneumatic wheels.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Robet, Ingénieur-Conseil, 16 avenue de Villier, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with dates of validity).

243,075 (from August 3, 1910). Dr. Carl Harries, Kiel. Process for the production of isoprene.

243,076 (from November 5, 1910). Dr. Carl Harries, Kiel. Process for the production of isoprene.

243,248 (from April 26, 1911). Conrad Beyer, Köln-Bayenthal. Process for maintaining elasticity of rubber goods.

243,346 (from December 1, 1909). Dr. Wolfgang Ostwald, Leipzig, and Walter Ostwald, Buckow. Process for the prevention of slackening of decay in manufactured rubber articles.

243,347 (from January 14, 1911). Dr. Gustav Koller, Dr. Julius Her- bany, and Dr. Oskar Jolies, Wien. Process for production of a plastic mass.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of the values of exports of manufactures of india-rubber and gutta-percha for the month of December, 1911, and for five calendar years:

MONTHS:	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
December, 1911.....	190,898	\$120,946	\$612,118	\$923,962
January-November ..	2,085,613	1,565,146	6,528,022	10,178,781
Total, 1911.....	\$2,276,511	\$1,686,092	\$7,140,140	\$11,102,743
Total, 1910.....	2,056,944	2,266,137	5,681,486	10,004,567
Total, 1909.....	1,800,300	1,653,466	4,413,626	7,867,392
Total, 1908.....	1,256,490	1,329,170	3,580,685	6,166,345
Total 1907.....	1,402,373	1,646,880	3,944,080	6,993,333

THE above heading, "All Other Rubber," for the month of December, 1911, and for the calendar year, includes the following details relating to Tires:

MONTHS.	For Automobile.	All Other.	TOTAL.
December, 1911....values	\$200,450	\$34,677	\$235,127
January-November	2,257,727	526,653	2,784,380

Total\$2,458,177 \$561,330 \$3,019,507

Exports of rubber boots and shoes have been in quantity: 3,150,294 pairs in 1909; 4,157,693 pairs in 1910; 2,886,965 pairs in 1911.

Exports of reclaimed rubber: \$487,675 in 1909; \$652,233 in 1910; \$847,335 in 1911.

IMPORTS INTO THE UNITED STATES.

MANUFACTURERS OF:	1909.	1910.	1911.
India-rubber	\$1,390,684	\$971,764	\$819,733
Gutta-percha	71,857	79,111	47,896
Elasticon and similar substitutes..	.....	.....	*40,774

Total\$1,462,541 \$1,050,875 \$908,403

*Figures cover period since July 1.

EXPORTS OF AUTOMOBILES AND PARTS (EXCEPT TIRES).

Countries.	1909.	1910.	1911.
United Kingdom	*\$2,059,210	*\$2,755,592	\$3,380,266
France	*846,136	*753,204	449,757
Germany	*181,087	*331,754	124,615
Italy	*224,068	*377,750	199,986
Other Europe.....	*335,675	*764,463	718,360
Canada	*2,437,042	*5,021,043	5,549,998
Mexico	*494,238	*689,903	492,974
West Indies and Bermuda..	*337,414	*412,588	343,281
South America.....	*240,453	*519,160	1,356,445
British Oceania.....	*303,452	*748,933	2,217,762
Other Asia and Oceanic....	*191,448	*599,756	795,576
Other countries.....	*136,394	*216,150	295,341

Automobiles\$15,924,361
Parts of (except tires).... 3,254,123

Total\$7,786,617 \$13,190,296 \$19,178,484

*Figures include both "Automobile" and "Parts of."

Review of the Crude Rubber Market.

THE last days of January displayed in the London market the influence of the conditions attending the auctions of January 30; prices receding about 1d. below the previous level of 4s. 8½d. Buyers at the sale in question were at first conservative in their operations, which were confined to the choicest grades, only 80 tons having been sold on the first day out of the 500 tons offered. Owing to the recovery which took place almost immediately, about 400 tons of plantation rubber were disposed of at the second day's sale at unchanged prices, nearly all the parcels offered finding buyers. These purchases being for consumption, tended to promote a healthy feeling, which was further encouraged by the premium for distant fine Pará being maintained at 1d. to 2d. above the value of the nearer positions.

While demand had in general been satisfactory, attention was directed to the opinion, expressed in some quarters, that most of the anticipated receipts being sold to arrive, and a certain amount of reserve stock being held by manufacturers, some dullness might be looked for until more is known about the Brazilian output. Large holders recognized that the premature inauguration of an upward movement might bring about a reaction just previous to the next sales. The amount of forward trading, it has likewise been urged, will reduce the ultimate orders of consumers. Hence a disposition on the part of holders to meet the wants of consumption.

The sale of the New York syndicate stocks tended to a brief improvement, but the London price again dropped, reaching 4s. 6½d. on the 9th. It was considered that the disposal of this New York stock indicates that in the opinion of the interested holders, there are meager prospects of a much higher market value than now prevails. It is understood that the Pará stock held by the syndicate represents about 2,400 tons.

At the opening of the London sales of the 13th conditions were practically unchanged, but the influence of prospective increased supplies of plantation was manifest in the evident unwillingness of controlling interests to check the demands of consumption. It has been remarked that the present values show large returns to producers, so that a continued disposition on their part to encourage demand is fully anticipated. An advance of 1½d. was established at the later part of the sale, but this improvement was afterwards lost in the open market, being, however, subsequently regained.

Interest during the latter part of the month culminated in the London auction of plantation rubber, scheduled for the 27th, for which the large quantity of 850 tons had been announced; being in excess of the offerings at any individual sale during 1911. On the first day 350 tons were disposed of.

Unlooked for steadiness was displayed on the opening day of the sale, demand proving sufficiently active to give a firm tone to the market. Prices remained within a fraction of previous figures. Fine upriver Pará was quoted on the 27th at 4s. 7½d.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and February 29—the current date.

PARÁ.	Mar. 1, '11.	Feb. 1, '12.	Feb. 29, '12.
Islands, fine, new.....	152@153	108@109	107@108
Islands, fine, old.....	none here	110@111	108@109
Upriver, fine, new.....	164@165	111@112	109@110
Upriver, fine, old.....	166@167	114@115	112@113
Islands, coarse, new.....	89@ 90	64@ 65	62@ 63
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	117@118	94@ 95	92@ 93
Upriver, coarse, old.....	119@120	none here	94@ 95
Cametá	93@ 94	66@ 67	65@ 66
Caucho (Peruvian) ball.....	117@118	94@ 95	93@ 94
Caucho (Peruvian) sheet.....	none here	none here	none here

PLANTATION PARA.

Fine smoked sheet.....	183@184	133@134	130@131
Fine pale crepe.....	168@170	131@132	129@130
Fine sheets and biscuits.....	158@159	127@128	125@126

CENTRALS.

Esmeralda, sausage.....	107@108	92@ 93	91@ 92
Guayaquil, strip	none here	none here	none here
Nicaragua, scrap.....	105@106	91@ 92	90@ 91
Panama	none here	none here	none here
Mexican, scrap.....	104@105	90@ 91	89@ 90
Mexican, slab.....	65@ 66	54@ 55	none here
Mangabeira, sheet.....	72@ 73	none here	68@ 69
Guayule	75@ 76	60@ 62	60@ 61
Balata, sheet.....	95@ 96	89@ 90	89@ 90
Balata, block	72@ 73	56@ 57	55@ 56

AFRICAN.

Lopori ball, prime.....	132@133	109@110	109@110
Lopori, strip, prime.....	none here	105@106	none here
Aruwimi	125@126	106@107	105@106
Upper Congo ball, red.....	132@133	112@113	110@111
Ikelemba	none here	none here	none here
Sierra Leone, 1st quality.....	135@136	95@ 96	98@ 99
Massai, red.....	135@136	102@103	101@102
Soudan, Niggers.....	none here	none here	none here
Cameroon ball.....	88@ 90	69@ 70	70@ 71
Benguela	80@ 81	72@ 73	71@ 72
Madagascar, pinky.....	105@106	none here	none here
Accra, flake.....	43@ 44	27@ 28	27@ 28

EAST INDIAN.

Assam	105@106	none here	none here
Pontianak	71¼@7½	55½@5¾	5¾@
Borneo	none here	none here	none here

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands fine.....	4\$600	Upriver, fine.....	5\$650
Islands, coarse.....	2\$350	Upriver, coarse.....	4\$500
		Exchange	16 7/32d.

Latest Manáos advices:

Upriver, fine.....	5\$750	Exchange	16 7/32d.
Upriver, coarse.....	4\$350		

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During February there has been a good demand for paper from banks, both in and out of town, at about the same rates as in January, namely, 4½@4¾ per cent. for the best rubber names, and 5@5½ per cent. for those not so well known."

PRICES FOR JANUARY (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine	\$1.03@1.11	\$1.15@1.30	\$1.78@1.87
Upriver, coarse .....	.90@ .94	.90@ .98	1.11@1.15
Islands, fine .....	.97@1.07	1.00@1.15	1.67@1.81
Islands, coarse .....	.62@ .64	.62@ .69	.71@ .75
Cametá .....	.63@ .66	.64@ .73	.79@ .85

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are practically unchanged:

	March 1
Old rubber boots and shoes—domestic.....	9¼@ 9¾
Old rubber boots and shoes—foreign.....	9 @ 9¾
Pneumatic bicycle tires.....	4½@ 4¾
Automobile tires	8¼@ 8½
Solid rubber wagon and carriage tires.....	9¼@ 9¾
White trimmed rubber.....	11 @11½
Heavy black rubber.....	4¾@ 5
Air brake hose	4½@ 4¾
Garden hose	1¼@ 1¾
Fire and large hose.....	2 @ 2¼
Matting	7½@ 1

Statistics of Para Rubber (Excluding Caucho).

NEW YORK

	Fine and Medium.	Coarse.	Total. 1912.	Total. 1911.	Total. 1910.
Stocks, January 1.....	290	42	332	211	207
Arrivals, January.....	1,714	667	2,381	1,352	2,040
Aggregating	2,004	769	2,713	1,563	2,247
Deliveries, January.....	1,744	664	2,408	1,321	2,015
Stocks, January 31.....	260	45	305	242	232
PARA. ENGLAND.					
	1912.	1911.	1910.	1912.	1911.
Stocks, January 1, tons	2,675	675	150	825	1,490
Arrivals, January.....	4,030	3,620	4,500	710	1,038
Aggregating	6,705	4,295	4,650	1,535	2,528
Deliveries, January.....	3,335	2,530	3,480	485	1,303
Stocks, January 31...	3,370	1,765	1,170	1,050	1,225
World's visible supply, January 31.....	6,372	4,582	4,083		
Pará receipts, July 1 to January 31.....	18,665	17,020	19,470		
Pará receipts of caucho, same dates.....	2,510	2,950	2,920		
Afloat from Pará to United States, Jan. 31	397	465	1,160		
Afloat from Pará to Europe, Jan. 31....	1,250	885	1,170		

Rubber Stock at Para.

Stock for January 31 shows an increase caused by heavier arrivals.

January 31, 1911.....	2,085	August 31, 1911.....	3,450
February 28.....	3,787	September 30.....	3,102
March 31.....	4,214	October 31.....	3,320
April 30.....	5,104	November 30.....	3,050
May 31.....	5,350	December 31.....	2,675
June 30.....	4,545	January 31, 1912.....	3,370
July 31.....	3,884		

Para.

R. O. AHLERS & Co. report [February 1]:

Market has been steady, but, after the big entries from United during the last few days, the upward movement of prices stopped.

African Rubbers.

NEW YORK STOCKS (IN TONS.)

January 1, 1911.....	115	August 1, 1911.....	90
February 1.....	115	September 1.....	112
March 1.....	11	October 1.....	67
April 1.....	98	November 1.....	45
May 1.....	98	December 1.....	60
June 1.....	90	January 1, 1912.....	58
July 1.....	90	February 1.....	150

PARA RUBBER VIA EUROPE.

POUNDS.	
JANUARY 25.—By the <i>President Lincoln</i> =Hamburg:	
N. Y. Commercial Co. (Fine)...	7,000
N. Y. Commercial Co. (Coarse)...	4,500
JANUARY 29.—By the <i>Laconia</i> =Liverpool:	
Robinson & Co. (Fine).....	11,500
Raw Products Co. (Fine).....	11,000
Arnold & Zeiss (Fine).....	13,500
Raw Products Co. (Coarse)...	11,000
FEBRUARY 5.—By the <i>Arabic</i> =Liverpool:	
Robinson & Co. (Fine).....	2,500
Raw Products Co. (Coarse)...	3,500
General Rubber Co. (Caucho)...	22,500
FEBRUARY 5.—By the <i>Waldersee</i> =Hamburg:	
N. Y. Commercial Co. (Fine)...	9,000
Ed. Maurer (Fine).....	8,000
FEBRUARY 10.—By the <i>Baltic</i> =Liverpool:	
N. Y. Commercial Co. (Fine)...	90,000
General Rubber Co. (Caucho)...	9,000
FEBRUARY 13.—By the <i>Campania</i> =Liverpool:	
Arnold & Zeiss (Fine).....	560,000
FEBRUARY 14.—By the <i>Cymric</i> =Liverpool:	
N. Y. Commercial Co. (Fine).....	22,500

FEBRUARY 15. By the *President Grant*=Hamburg:

Meyer & Brown (Fine).....	13,000
N. Y. Commercial Co. (Fine)...	11,500
Henderson & Korn (Caucho)...	34,000

FEBRUARY 19.—By the *Carmania*=Liverpool:

N. Y. Commercial Co. (Fine)...	50,000
Robinson & Co. (Fine).....	34,000
Muller Schall & Co. (Coarse)...	3,000

FEBRUARY 24.—By the *Lusitania*=Liverpool:

N. Y. Commercial Co. (Fine).....	56,000
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OTHER NEW YORK ARRIVALS.

CENTRALS.
[This sign, in connection with imports of Centrals, denotes Guayule rubber.] POUNDS.

JANUARY 25. By the <i>Proteus</i> =New Orleans:	
Manhattan Rubber Mfg. Co....	11,000
Meyer & Brown.....	5,000
G. Amsinck & Co.....	2,000
Robinson & Co.....	1,500

JANUARY 27.—By the *El Rio*=Galveston:

Continental-Mexican Rubber Co. *	45,000
Charles T. Wilson.....	7,000
JANUARY 27. By the <i>Monterey</i> =Frontera:	
H. Marquardt & Co.....	6,000

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

1911.			
July 7.....	4/2½	November 3.....	4/3
July 14.....	4/5½	November 10.....	4/4½
July 21.....	4/7	November 17.....	4/3
July 28.....	4/8	November 24.....	4/3½
August 4.....	4/7½	December 1.....	4/4½
August 11.....	4/7½	December 8.....	4/5½
August 18.....	4/7½	December 15.....	4/4½
August 25.....	4/10½	December 22.....	4/4
September 1.....	4/8½	December 29.....	4/3½
September 8.....	4/9	January 5.....	4/4½
September 15.....	5/	January 12.....	4/5½
September 22.....	4/10½	January 19.....	4/5½
September 29.....	4/8	January 26.....	4/8
October 6.....	4/7	February 2.....	4/7
October 13.....	4/5	February 9.....	4/6½
October 20.....	4/6½	February 16.....	4/6¾
October 27.....	4/4	February 23.....	4/7½

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

FEBRUARY 5.—By the steamer *Aidau*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	TOTAL.
Arnold & Zeiss.....	192,500	19,700	175,600	58,900	446,700
New York Commercial Co.	87,300	22,200	31,500	22,200	163,200
General Rubber Co.....	83,600	15,400	60,000	4,200	163,200
Meyer & Brown.....	34,700	6,400	18,500	10,200	69,800
De Lagotellerie & Co.....	15,000	5,000	30,400	.....	50,400
Henderson & Korn.....	6,500	300	5,900	.....	12,700
Hagemeyer & Bruun.....	400	.....	9,900	.....	10,300
Total	420,000	69,000	331,800	95,500	916,300

FEBRUARY 15.—By the steamer *Cuthbert*, from Manáos and Pará:

Arnold & Zeiss.....	310,300	62,700	196,800	178,800	748,600
New York Commercial Co.	155,200	37,800	87,400	155,600	436,000
General Rubber Co.....	127,900	20,300	34,100	700	183,000
Meyer & Brown.....	66,800	10,800	18,200	17,500	113,300
De Lagotellerie & Co.....	12,100	6,400	21,800	.....	40,300
Hagemeyer & Bruun.....	12,500	1,100	8,600	.....	22,200
G. Amsinck & Co.....	11,800	.....	6,600	.....	18,400
Total	696,600	139,100	373,500	352,600	1,561,800

FEBRUARY 23.—By the steamer *Jacary*, from Pará:

General Rubber Co.....	54,500	.....	54,500
De Lagotellerie & Co.....	23,700	.....	23,700
W. R. Grace Co.....	.....	12,000	12,000
H. A. Astlet & Co.....	2,300	1,200	4,800
Total	2,300	79,400	16,800

FEBRUARY 26. By the steamer *Clement*, from Manáos and Pará:

Arnold & Zeiss.....	443,400	173,200	349,500	65,000	1,031,100
New York Commercial Co.	292,200	77,200	114,500	155,800	639,700
General Rubber Co.....	382,300	62,100	101,600	20,900	566,900
Meyer & Brown.....	44,400	6,400	9,100	.....	59,900
Henderson & Korn.....	8,300	300	18,600	.....	27,200
De Lagotellerie & Co.....	.....	4,600	21,100	.....	25,700
G. Amsinck & Co.....	7,500	400	5,000	8,000	20,900
Total	1,178,100	324,200	619,400	249,700	2,371,400

Harburger & Stack	4,000
Maitland, Coppel & Co.....	2,000
Laurence Johnson & Co.....	2,000
E. Steiger & Co.....	1,500
Mecke & Co.....	1,000

JANUARY 27.—By the *Panama*=Colon:

G. Amsinck & Co.....	2,500
Gillespie Bros. & Co.....	2,000
Isaac Brandon & Bros.....	1,000

JANUARY 29.—By the *El Oriente*=Galveston:

Continental-Mexican Rubber Co. *	40,000
Charles T. Wilson.....	*10,000

JANUARY 29.—By the *Laconia*=Liverpool:

Henderson & Korn.....	11,500
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JANUARY 31.—By the *Camaguary*=Tampico:

Ed. Maurer	*115,000
For Europe	*110,000

FEBRUARY 2.—By the *Creole*=New Orleans:

A. N. Rotholz	5,000
Robinson & Co.....	5,000
G. Amsinck & Co.....	5,000
Eggers & Heimlein	2,500

FEBRUARY 2.—By the *Mexico*=Frontera:

E. Steiger & Co.....	5,500
E. Nelson Tibbals & Co.....	5,500
Harburger & Stack	5,000
Laurence Johnson & Co.....	4,500

J. W. Wilson & Co.	4,500	
H. Marquardt & Co.	2,500	
Laurens Import Co.	1,500	
American Trading Co.	1,000	
General Export Co.	1,000	
G. Amsinck & Co.	1,000	32,000

FEBRUARY 2.—By the *St. Paul*=London:
Arnold & Zeiss 40,000

FEBRUARY 3.—By the <i>Prinz August Wilhelm</i> =Tampico:		
Continental-Mexican Rubber Co.	*80,000	
Ed. Maurer	70,000	
New York Commercial Co.	*34,000	
Arnold & Zeiss	*33,000	
For Europe	*80,000	*297,000

FEBRUARY 5.—By the <i>Albania</i> =Colon:		
Isaac Brandon & Bros.	19,000	
G. Amsinck & Co.	11,500	
E. Nelson Tibbals & Co.	4,000	
Laurence Johnson & Co.	3,000	
Piza, Neplews & Co.	3,000	
American Trading Co.	1,000	
Wessels, Kulenkampff & Co.	1,000	42,500

FEBRUARY 5.—By the <i>Prinz August Wilhelm</i> =Bahia:		
J. H. Rossbach & Bros.	50,000	
Adolph Hirsch & Co.	135,000	185,000

FEBRUARY 5.—By the <i>Wallsee</i> =Hamburg:		
George A. Alden & Co.	20,000	
Robert Badenhop	5,000	
Adolph Hirsch & Co.	22,500	47,500

FEBRUARY 7.—By the <i>El Occidente</i> =Galveston:		
Continental-Mexico Rubber Co.	*90,000	
Charles T. Wilson	*15,000	*105,000

FEBRUARY 7.—By the <i>Prinz Eitel Friedrich</i> =Colon:		
G. Amsinck & Co.	7,000	
Mecke & Co.	2,000	
Pablo, Calvert & Co.	1,000	
J. Sambrada & Co.	1,000	
Gillespie Bros. & Co.	1,000	
Isaac Brandon & Bros.	1,000	13,000

FEBRUARY 7.—By the <i>Minneapolis</i> =London:		
George A. Alden & Co.	45,000	

FEBRUARY 8.—By the <i>Indian Prince</i> =Bahia:		
Adolph Hirsch & Co.	17,000	

FEBRUARY 10.—By the <i>Esperanza</i> =Vera Cruz:		
H. Marquardt & Co.	3,500	
Maldonado & Co.	1,500	
Harburger & Stack	1,500	6,500

FEBRUARY 10.—By the <i>Colon</i> =Colon:		
G. Amsinck & Co.	11,000	
Dumarest Bros. & Co.	5,000	
Wessels, Kulenkampff & Co.	4,000	
Gillespie Bros. & Co.	2,000	
Pablo, Calvert & Co.	2,000	
J. Sambrada & Co.	1,000	25,000

FEBRUARY 13.—By the <i>Santiago</i> =Tampico:		
Continental-Mexican Rubber Co.	*40,000	
Ed. Maurer	*34,000	
New York Commercial Co.	*33,000	
Arnold & Zeiss	*25,000	*132,000

FEBRUARY 14.—By the <i>Oruba</i> =Columbia:		
A. M. Capen's Sons	4,500	
Mecke & Co.	3,500	
A. Held	3,500	
G. Amsinck & Co.	2,500	
Caballero & Blanco	2,000	
J. Sambrada & Co.	1,500	
Maitland, Coppell & Co.	1,000	18,500

FEBRUARY 14.—By the <i>Prinz Sigismund</i> =Colon:		
G. Amsinck & Co.	18,000	
Laurence Johnson & Co.	2,000	
Gillespie Bros. & Co.	1,000	
Isaac Brandon & Bros.	1,000	
Wessels, Kulenkampff & Co.	1,000	23,000

FEBRUARY 15.—By the <i>President Grant</i> =Hamburg:		
Ed. Maurer	*5,500	

FEBRUARY 15.—By the <i>Antilles</i> =New Orleans:		
G. Amsinck & Co.	4,500	
Robinson & Co.	3,000	
Manhattan Rubber Co.	4,500	
Meyer & Brown	2,500	
Eggers & Heinlein	2,500	16,500

FEBRUARY 16.—By the <i>El Rio</i> =Galveston:		
Continental-Mexican Rubber Co.	*85,000	
Charles T. Wilson	*11,000	*96,000

FEBRUARY 17.—By the <i>Morro Castle</i> =Frontera:		
W. L. Wadleigh	4,500	
Laurence Johnson & Co.	4,500	
George A. Alden & Co.	3,500	
Harburger & Stack	2,500	
P. V. Rubio & Co.	2,500	
General Export Comm. Co.	2,500	
Herman Kluge	1,500	
H. Marquardt & Co.	1,000	22,000

FEBRUARY 20.—By the <i>Allemania</i> =Columbia:		
Maitland, Coppell & Co.	11,500	
A. Held	4,500	
Schutte Bunemann & Co.	3,000	
Caballero & Blanco	1,000	20,000

FEBRUARY 20.—By the <i>Sidra</i> =Bahia:		
Adolph Hirsch & Co.	95,000	

FEBRUARY 21.—By the <i>Prinz August Wilhelm</i> =Colon:		
E. Nelson Tibbals & Co.	9,000	
Isaac Brandon & Bros.	7,000	
G. Amsinck & Co.	1,500	
A. J. Capen's Sons	1,500	
Gillespie Bros. & Co.	1,000	20,000

FEBRUARY 23.—By the <i>El Sol</i> =Galveston:		
Continental-Mexican Rubber Co.	*115,000	

FEBRUARY 23.—By the <i>Panama</i> =Colon:		
Pablo, Calvert & Co.	2,000	
Dumarest Bros. & Co.	1,000	
Roldau & Van Sickle	1,000	
American Trading Co.	1,000	
Isaac Brandon & Bros.	1,000	6,000

FEBRUARY 23.—By the <i>Guantanamo</i> =Tampico:		
N. Y. Commercial Co.	*200,000	
Ed. Maurer	*180,000	
Continental-Mexican Rubber Co.	*155,000	
Arnold & Zeiss	*34,000	
For Europe	*100,000	*669,000

FEBRUARY 23.—By the <i>Byron</i> =Bahia:		
J. H. Rossbach & Bros.	35,000	
Adolph Hirsch & Co.	30,000	65,000

FEBRUARY 24.—By the <i>Monterey</i> =Frontera:		
Harburger & Stack	3,000	
Laurence Johnson & Co.	3,000	
E. Nelson Tibbals & Co.	2,500	
E. Steiger & Co.	2,000	
Herman Kluge	1,000	11,500

AFRICAN.

JANUARY 24.—By the <i>Kroonland</i> =Antwerp:		
Meyer & Brown	11,500	
Ed. Maurer	9,000	
Robert Badenhop	7,000	27,500

JANUARY 25.—By the <i>President Lincoln</i> =Hamburg:		
Arnold & Zeiss	50,000	
George A. Alden & Co.	55,000	
Ed. Maurer	11,500	
James T. Johnstone	11,000	
Robert Badenhop	3,500	
Raw Products Co.	2,500	133,500

JANUARY 25.—By the <i>Philadelphia</i> =London:		
Arnold & Zeiss	20,000	
General Rubber Co.	10,000	
George A. Alden & Co.	10,000	40,000

JANUARY 29.—By the <i>Rochambeau</i> =Havre:		
Ed. Maurer	60,000	
In Transit	5,500	65,500

JANUARY 29.—By the <i>Bayern</i> =Hamburg:		
Wallace L. Gough Co.	22,500	
George A. Alden & Co.	11,000	
Meyer & Brown	9,000	
Robert Badenhop	7,000	49,500

JANUARY 29.—By the <i>Laconia</i> =Liverpool:		
Ed. Maurer	56,000	
General Rubber Co.	13,500	
Arnold & Zeiss	13,500	
Henderson & Korn	11,500	
James T. Johnstone	4,500	99,000

JANUARY 20.—By the <i>Roma</i> =Lisbon:		
General Rubber Co.	45,000	
Arnold & Zeiss	22,500	
Wallace L. Gough Co.	18,000	
Robert Badenhop	10,000	95,500

FEBRUARY 1.—By the <i>Finland</i> =Antwerp:		
Meyer & Brown	10,000	
Arnold & Zeiss	7,000	
Raw Products Co.	3,000	
Robinson & Co.	2,500	22,500

FEBRUARY 5.—By the <i>Arabic</i> =Liverpool:		
Ed. Maurer	22,500	
General Rubber Co.	22,500	
Robinson & Co.	11,500	
Meyer & Brown	7,000	63,500

FEBRUARY 5.—By the <i>Waldersee</i> =Hamburg:		
George A. Alden & Co.	95,000	
Arnold & Zeiss	25,000	
Meyer & Brown	15,000	
General Rubber Co.	11,500	
Rubber Trading Co.	10,000	
Wallace L. Gough Co.	7,000	
Robert Badenhop	4,500	168,000

FEBRUARY 7.—By the <i>Vaderland</i> =Antwerp:		
George A. Alden & Co.	56,000	
Arnold & Zeiss	20,000	

Meyer & Brown	15,000	
Wallace L. Gough Co.	22,500	
L. Blitz	9,000	
Henderson & Korn	9,000	
Rubber Trading Co.	5,000	
William H. Stiles	7,000	143,500

FEBRUARY 7.—By the <i>Niagara</i> =Havre:		
Arnold & Zeiss	150,000	
George A. Alden & Co.	30,000	180,000

FEBRUARY 7.—By the <i>Kaiserin Auguste Victoria</i> =Hamburg:		
Arnold & Zeiss	38,000	
George A. Alden & Co.	25,000	
Meyer & Brown	34,000	
Henderson & Korn	15,000	
Robert Badenhop	11,000	
Ed. Maurer	10,000	
Wallace L. Gough Co.	9,000	
James T. Johnstone	5,000	
General Rubber Co.	4,500	151,500

FEBRUARY 8.—By the <i>Oceanic</i> =Havre:		
George A. Alden & Co.	33,500	
General Rubber Co.	11,500	45,000

FEBRUARY 10.—By the <i>Baltic</i> =Liverpool:		
George A. Alden & Co.	34,000	
Ed. Maurer	22,500	
James T. Johnstone	22,500	
Robinson & Co.	11,500	
General Rubber Co.	5,500	
Wallace L. Gough Co.	2,000	98,000

FEBRUARY 13.—By the <i>Campania</i> =Liverpool:		
Arnold & Zeiss	98,000	

FEBRUARY 13.—By the <i>Zeeland</i> =Antwerp:		
Arnold & Zeiss	27,000	
Meyer & Brown	9,000	
Raw Products Co.	3,500	
In Transit	26,000	65,500

FEBRUARY 13.—By the <i>St. Louis</i> =London:		
General Rubber Co.	9,000	
George A. Alden & Co.	9,000	
Arnold & Zeiss	5,000	
Wallace L. Gough	20,000	43,000

FEBRUARY 14.—By the <i>Cymric</i> =Liverpool:		
George A. Alden & Co.	35,000	
Ed. Maurer	22,500	
Arnold & Zeiss	22,500	
Robinson & Co.	7,000	87,000

FEBRUARY 15.—By the <i>President Grant</i> =Hamburg:		
George A. Alden & Co.	140,000	
General Rubber Co.	9,000	
Meyer & Brown	7,000	
Rubber Trading Co.	7,000	
Wallace L. Gough Co.	7,000	
Robert Badenhop	5,500	175,500

FEBRUARY 19.—By the <i>Lapland</i> =Antwerp:		
Meyer & Brown	11,500	
L. Blitz	4,500	16,000

FEBRUARY 19.—By the <i>Carmania</i> =Liverpool:		
George A. Alden & Co.	45,000	
Ed. Maurer	11,500	
Robinson & Co.	7,000	
James T. Johnstone	2,500	66,000

FEBRUARY 20.—By the <i>Chicago</i> =Havre:		
Ed. Maurer	11,000	

FEBRUARY 20.—By the <i>Minnehaha</i> =London:		
General Rubber Co.	50,000	
Wallace L. Gough Co.	13,500	
George A. Alden & Co.	11,000	
Robinson & Co.	11,500	86,000

FEBRUARY 23.—By the <i>St. Paul</i> =London:		
Ed. Maurer	30,000	

FEBRUARY 23.—By the <i>St. Laurent</i> =Bordeaux:		
Arnold & Zeiss	25,000	
Meyer & Brown	27,000	
Robert Badenhop	5,500	57,500

FEBRUARY 24.—By the <i>Lusitania</i> =Liverpool:		
Arnold & Zeiss	45,000	

EAST INDIAN.

JANUARY 24.—By the <i>Kroonland</i> =Antwerp:		
Meyer & Brown	*17,000	

JANUARY 25.—By the <i>Braunfels</i> =Colombo:		
Meyer & Brown	*40,000	
Muller Schall & Co.	*11,500	*51,500

JANUARY 25.—By the <i>Philadelphia</i> =London:		
New York Commercial Co.	*19,000	
Arnold & Zeiss	*13,000	
Ed. Maurer	*4,000	*36,000

JANUARY 25.—By the <i>Royal Prince</i> =Colombo:		
Meyer & Brown	*70,000	
New York Commercial Co.	*29,000	*99,000

JANUARY 26. By the <i>Fandalia</i> =Singapore:		
Ed. Maurer	*40,000	
L. Littlejohn Co.	*20,000	
Wallace L. Gough Co.	*9,000	
New York Commercial Co.	*9,000	
J. W. Bird	22,500	
L. Littlejohn Co.	11,500	
Ed. Maurer	17,000	129,000
JANUARY 29. By the <i>Indramayo</i> =Colombo:		
Meyer & Brown	*22,500	
New York Commercial Co.	*13,500	*36,000
JANUARY 29. By the <i>Lacuna</i> =Liverpool:		
Ed. Maurer	7,000	
JANUARY 29.—By the <i>Stentarm</i> =Colombo:		
Robert Badenhop	*34,000	
Meyer & Brown	*13,000	
New York Commercial Co.	*15,000	*64,000
FEBRUARY 1.—By the <i>Mesaba</i> =London:		
General Rubber Co.	155,000	
Meyer & Brown	9,000	
Ed. Maurer	5,000	
General Rubber Co.	11,500	
Robinson & Co.	11,000	191,500
FEBRUARY 1.—By the <i>Finland</i> =Antwerp:		
Meyer & Brown	*15,000	
Arnold & Zeiss	*11,000	
Raw Products Co.	*3,500	*29,500
FEBRUARY 2. By the <i>Nie Yon</i> =London:		
Arnold & Zeiss	*155,000	
FEBRUARY 7. By the <i>Ukade</i> =Antwerp:		
Meyer & Brown	70,000	
Rubber Trading Co.	*4,500	
Arnold & Zeiss	*3,500	*78,000
FEBRUARY 7. By the <i>Kasern Augusta Victoria</i> =Hamburg:		
Ed. Maurer	*13,000	
FEBRUARY 7.—By the <i>Minneapolis</i> =London:		
Arnold & Zeiss	*125,000	
New York Commercial Co.	*95,000	
General Rubber Co.	*13,500	
James T. Johnstone	*9,000	
Meyer & Brown	*7,000	
Henderson & Korn	15,000	
Robinson & Co.	*4,500	
In Transit	*15,000	
Arnold & Zeiss	45,000	*319,000
FEBRUARY 8. By the <i>Oceanic</i> =London:		
New York Commercial Co.	*50,000	
Arnold & Zeiss	*25,000	
James T. Johnstone	15,000	
In Transit	*13,500	*103,500
FEBRUARY 10.—By the <i>Pageturm</i> =Colombo:		
Meyer & Brown	*90,000	
New York Commercial Co.	*35,000	
Robert Badenhop	*40,000	*165,000
FEBRUARY 13.—By the <i>Zachet</i> =Antwerp:		
New York Commercial Co.	*145,000	
Meyer & Brown	*40,000	
Robert Badenhop	*4,500	*189,500

FEBRUARY 14. By the <i>Minnetonka</i> =London:		
Ed. Maurer	22,500	
Ed. Maurer	17,500	
Wallace L. Gough Co.	*9,000	*49,000
London:		
Arnold & Zeiss	45,000	
Ed. Maurer	25,000	
New York Commercial Co.	15,000	
Wallace L. Gough Co.	15,000	
Wallace L. Gough Co.	*13,500	*113,500
FEBRUARY 15.—By the <i>Grand</i> =Hamburg:		
Meyer & Brown	*7,000	
Wallace L. Gough Co.	*7,000	*14,000
FEBRUARY 19.—By the <i>Lapland</i> =Antwerp:		
Meyer & Brown	*30,000	
FEBRUARY 19.—By the <i>Phaenix</i> =Singapore:		
Ed. Maurer	*25,000	
L. Littlejohn & Co.	*8,000	
New York Commercial Co.	*4,500	
A. W. Brunn	*3,500	
Arnold & Zeiss	*30,000	
J. W. Bird	15,000	86,000
FEBRUARY 20.—By the <i>Minchaha</i> =London:		
New York Commercial Co.	*135,000	
Arnold & Zeiss	*70,000	
Robinson & Co.	*22,500	
James T. Johnstone	*22,500	
Henderson & Korn	*15,000	
Ed. Maurer	*15,000	
Wallace L. Gough Co.	*15,000	*295,000
FEBRUARY 23. By the <i>St Paul</i> =London:		
Arnold & Zeiss	*20,000	
New York Commercial Co.	*11,000	
In Transit	*35,000	*66,000

GUTTA JELUTONG.

POUNDS.

JANUARY 26.—By the <i>Fandalia</i> =Singapore:		
Winter & Smillie	125,000	
Wallace L. Gough Co.	225,000	
Arnold & Zeiss	110,000	
Haebler & Co.	155,000	
L. Littlejohn & Co.	450,000	1,065,000
FEBRUARY 19.—By the <i>Indramayo</i> =Singapore:		
L. Littlejohn & Co.	325,000	
Haebler & Co.	225,000	
Wallace L. Gough Co.	200,000	
Arnold & Zeiss	55,000	
George A. Alden & Co.	45,000	850,000

GUTTA PERCHA.

POUNDS.

JANUARY 23. By the <i>President Lincoln</i> =Hamburg:		
Robert Soltan & Co.	11,500	
JANUARY 26. By the <i>Fandalia</i> =Singapore:		
L. Littlejohn & Co.	45,000	
FEBRUARY 19.—By the <i>Indramayo</i> =Singapore:		
Haebler & Co.	45,000	

BALATA.

POUNDS.

JANUARY 27. By the <i>President Lincoln</i> =Hamburg:		
Robert Badenhop	13,500	
JANUARY 29.—By the <i>Narvre</i> =Trinidad:		
Ed. Maurer	11,000	
Bartling, De Leon & Co.	3,500	14,500
JANUARY 31. By the <i>Ukade</i> =Trinidad:		
G. Amsinck & Co.	5,500	
George A. Alden & Co.	1,000	6,500
FEBRUARY 7. By the <i>Ukade</i> =Trinidad:		
G. Amsinck & Co.	3,500	
Bartling, De Leon & Co.	2,500	
Frame & Co.	1,000	7,000
FEBRUARY 13.—By the <i>St. Louis</i> =London:		
Wallace L. Gough	7,000	
FEBRUARY 15.—By the <i>President Grant</i> =Hamburg:		
George A. Alden & Co.	11,000	
FEBRUARY 20.—By the <i>Saramaca</i> =Demerara:		
Schutte Bunemann & Co.	2,500	
Middleton & Co.	2,000	
Bartling, De Leon & Co.	2,000	
Ed. Maurer	1,000	7,500

BOSTON ARRIVALS.

POUNDS.

JANUARY 1.—By the <i>Bethania</i> =Hamburg:		
George A. Alden & Co. (African)	5,000	
JANUARY 18.—By the <i>Erroll</i> =Singapore:		
State Rubber Co. (Ceylon)	34,000	
L. Littlejohn & Co. (Jelutong) ..	340,000	374,000
JANUARY 21.—By the <i>Seneca</i> =Singapore:		
Haebler & Co. (Gutta-Percha) ..	70,000	
State Rubber Co. (Jelutong) ..	110,000	
L. Littlejohn & Co. (Jelutong) ..	760,000	940,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK JANUARY.

Imports.	Pounds.	Value.
India-rubber	11,116,008	\$8,937,418
Balata	155,030	89,634
Guayule	893,748	403,451
Gutta-percha	68,660	4,927
Gutta-jelutong (Pontianak) ..	2,139,988	92,256
Total	14,373,434	\$9,527,686
Exports.		
India-rubber	138,579	126,451
Balata .....	.....	.....
Guayule .....	.....	.....
Gutta-percha .....	.....	.....
Reclaimed rubber	216,906	29,394
Rubber scrap, imported ..	1,190,861	95,963
Rubber scrap, exported ..	447,245	68,845

EXPORTS OF INDIA-RUBBER FROM PARA FOR JANUARY, 1912 (IN KILOGRAMS).

NEW YORK.					EUROPE.					TOTAL.	
EXPORTERS.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	TOTAL.
Zarges, Berringer & Co.	129,699	16,596	154,673	14,302	315,270	216,058	17,730	61,800	43,329	338,917	654,187
Ad. H. Alden, Ltd.	31,125	5,742	36,369	17,560	90,796	110,629	23,116	50,225	6,240	190,210	281,006
Gordon & Co.	65,026	6,284	48,603	9,043	128,956	40,971	4,659	22,889	14,871	83,390	212,346
Suarez, Hermanos & Co., Ltd. ....	.....	.....	.....	.....	.....	151,406	1,344	3,545	45,947	202,242	202,242
De Lagotellerie & Co.	13,600	4,930	23,780	.....	40,310	47,600	686	23,750	.....	72,036	112,346
Pires, Teixeira & Co.	7,310	340	4,290	.....	11,940	4,760	340	3,960	.....	9,060	21,000
R. O. Ahlers & Co. ....	.....	.....	.....	.....	.....	7,747	.....	1,229	7,242	16,218	16,218
Nunes, Sobrinho & Co.	170	.....	4,950	.....	5,120	5,650	170	.....	.....	5,820	10,940
A. de La Riviere Co. ....	.....	.....	.....	.....	.....	.....	.....	5,940	.....	5,940	5,940
Sundries .....	.....	.....	.....	.....	.....	.....	.....	1,980	.....	1,980	1,980
Itacoatiara, direct .....	.....	.....	.....	.....	.....	7,090	713	5,079	1,142	14,024	14,024
.....	246,930	33,892	270,668	40,965	592,392	591,911	48,758	180,397	118,771	939,837	1,532,229
Manaos, direct	505,387	79,067	167,250	24,021	775,725	636,834	101,651	95,223	186,511	1,020,219	1,795,944
Iquitos, direct .....	.....	.....	.....	.....	.....	153,860	30,138	63,633	146,491	394,122	394,122
Total	752,317	112,959	437,915	64,926	1,368,171	1,382,605	180,547	339,253	451,773	2,354,178	3,722,295

MANAOS EXPORTS OF INDIA-RUBBER FOR JANUARY, 1912 (IN KILOGRAMS).

NEW YORK.					EUROPE.					TOTAL.	
EXPORTERS.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	TOTAL.
Zarges, Ohliger & Co.	262,272	23,552	114,506	83,757	484,037	441,552	60,799	39,069	93,400	634,820	1,118,907
Adelbert H. Alden, Ltd.	272,785	56,259	55,725	39,255	424,024	67,351	15,858	20,351	23,042	126,602	550,626
Gordon & Co.	158,940	33,556	53,788	9,265	255,549	79,031	16,165	6,920	52,060	154,176	409,725
De Lagotellerie & Co. ....	.....	.....	.....	.....	.....	10,977	4,693	6,234	3,582	25,486	25,486
Sundries .....	.....	.....	.....	.....	.....	1,265	523	9,257	722	11,767	11,767
.....	693,997	113,367	224,019	132,277	1,163,660	600,176	98,038	81,831	172,806	952,851	2,116,511
Iquitos, direct .....	.....	.....	.....	.....	.....	153,860	30,138	63,633	146,491	394,122	394,122
Total	693,997	113,367	224,019	132,277	1,163,660	754,036	128,176	145,464	319,297	1,346,973	2,510,633



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TEXAS TO SELL ITS GUAYULE SHRUB.

THE State of Texas intends to sell all the guayule shrub now remaining on the State lands. Bids will be received by the State Lands Commissioner up to March 14. Texas made its first sale of guayule shrub five years ago, receiving \$61,000. The shrub bought at that time has since been worked at the factory at Marathon and the rubber extracted therefrom marketed chiefly in New York.

Men who have been over the State lands of Texas carefully state that there are thousands of acres yet untouched on which guayule is growing in very large quantities.

Liverpool.

WILLIAM WRIGHT & CO. REPORT [FEBRUARY 1]:

Fine Pará.—The market has been active at, generally speaking,

advancing prices, closing about 3½d. per pound dearer than last month. America still continues to buy actively, both in Brazil and on this market, which makes holders chary for offering far ahead. Trade demand here has been moderate during the month, as the deliveries show. The undertone of the market is firm, and present appearances point to moderate fluctuation. Closing value: Hard, fine, 4s. 7½d. [\$1.12]; Island, 4s. 7½d. [\$1.125].

Antwerp.

RUBBER STATISTICS FOR JANUARY.

DETAILS.	1912.	1911.	1910.	1909.	1908.
Stocks, January 1...kilos	674,738	588,212	541,512	595,735	1,006,894
Arrivals in January....	321,433	549,956	261,867	283,955	547,968
Congo sorts.....	226,248	403,421	202,547	186,189	504,451
Other sorts.....	95,185	146,535	59,320	97,766	43,517
Aggregating.....	996,171	1,138,168	803,379	879,690	1,554,862
Sales in January.....	410,115	492,749	321,217	281,913	294,853
Stocks, January 31....	586,056	645,419	481,102	597,777	1,260,009
Arrivals since Jan. 1...kilos	321,433	549,956	261,867	283,955	547,968
Congo sorts.....	226,248	403,421	202,547	186,189	504,451
Other sorts.....	95,185	146,535	59,320	97,766	43,517
Sales since Jan. 1.....	410,115	492,749	321,217	281,913	294,853

RUBBER ARRIVALS FROM THE CONGO.

FEBRUARY 8.—By the steamer *Elizabethville*:

Bunge & Co.....(Société Générale Africaine) kilos	23,950
do.....(Chemins de fer Grand Lacs)	1,800
do.....(Alberta)	1,100
do.....(Comptoir Commercial Congolais)	5,800
Société Coloniale Anversoise.....(Haut Congo)	580
L. & W. Van de Vlede.....(Congo de Kasai)	52,500
do.....(Congo de Kasai)	25,000
do.....(Congo de Kasai)	3,000
Charles Dethier.....(American Congo Co.)	5,600
Willait Frères.....	2,000
Société Générale de Commerce.....(Alimaïenne)	1,750
Congo Trading Co.....	6,000
Osterrieth & Co.....	4,500
Cassart & Henrion.....	3,500
	138,530

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER

[From January 1 to December 31, 1910 and 1911. Compiled by the Ceylon Chamber of Commerce.]

	1910.	1911.
To Great Britain.....pounds	1,572,119	3,651,424
To United States.....	1,610,395	1,890,796
To Belgium.....	76,827	807,597
To Australia.....	5,858	61,444
To Japan.....	4,951	57,513
To Germany.....	16,956	55,829
To Canada.....	7,476	18,871
To Holland.....		12,893
To Italy.....	1,909	8,460
To Austria.....	1,041	6,648
To Straits Settlements.....		3,216
To India.....		196
To France.....		117
To Africa.....		35
Total.....	3,298,652	6,575,039

[Same period 1909—1,372,616; same 1908—831,905.]

[From January 1 to January 22, 1911 and 1912. Compiled by the Ceylon Chamber of Commerce.]

	1911.	1912.
To Great Britain.....pounds	61,418	135,606
To Belgium.....		12,402
To Germany.....		3,617
Total.....	61,418	151,625

[Same period 1910—128,597; same 1909—47,419.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

FROM—	1909.	1910.	1911.
Singapore (to Dec. 31) pounds.	2,412,617	3,764,877	6,780,835
Penang (to Dec. 24).....	2,088,133	2,454,907	4,978,879
Port Swettenham (to Dec. 31).....	2,960,320	8,349,523	12,109,788
Total.....	7,461,070	14,569,307	23,869,502

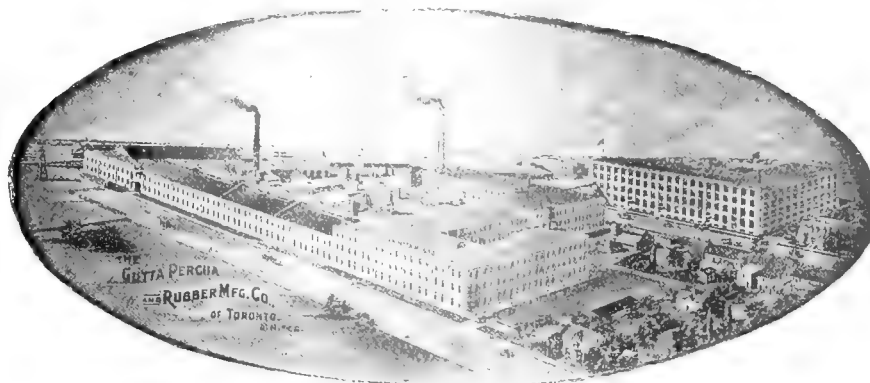
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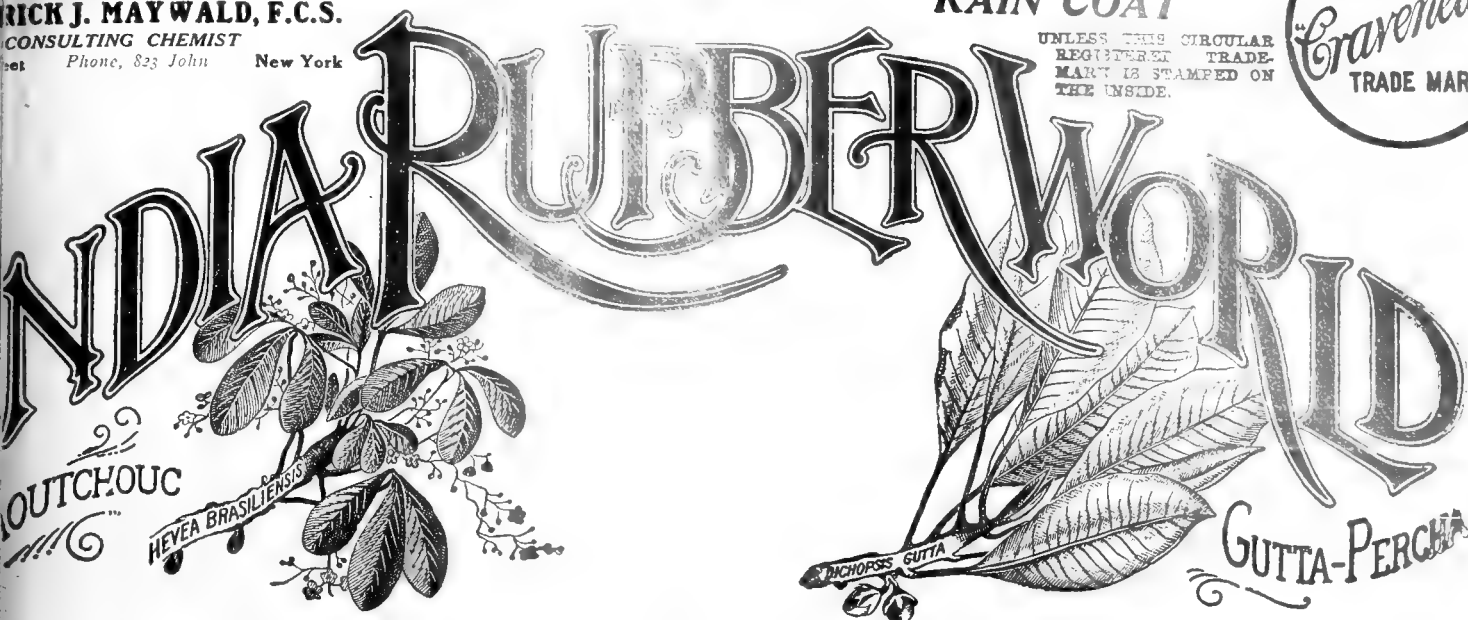
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APRIL 1, 1912.

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TABLE OF CONTENTS ON LAST PAGE OF READING.

HASTE AND ITS PENALTIES.

TO the experienced the creation of any "mushroom" industry forecasts inevitably, partial or complete failure. Nor could it be otherwise, for sudden growth entails ignorance of many vital points, and corresponding weak spots in the industrial structure. The motor-tire business growing up over night was a striking example of this. The history of most of the great and successful tire companies, from their beginnings, shows millions of dollars lost simply because the demand for goods was so great that they were forced to manufacture on a large scale without an adequate knowledge of the whole problem.

The same condition obtained in the planting of rubber. Hundreds of acres of Ceara were planted in the Middle East, and the trees destroyed as they matured, because the planters did not understand how to extract the latex profitably. Thousands of acres of *Castilloa* were planted in the Americas on soil not fitted for such culture, and millions of dollars were wasted.

In the great plantings of *Hevea* there has been the belief that, hasty though the work was, the penalty of the lack of knowledge and inadequate preparation, through sheer good luck was not to be paid. It begins to look, however, as if here also losses and disappointment are likely to be experienced. Within the last two years plantings supposed to be of *Hevea Brasiliensis* have been found to be a mixture of *Brasiliensis* and what appears to be a hybrid variety, practically valueless as a rubber producer. How far this extends none can say at present. The hybrid trees before tapping appear to the eye of the planter to be the thriftiest and best of their *Heveas*. When tapped, however, the product is a very inferior gum, and the quantity far below reasonable expectation. It is due wholly to government botanists that this type of tree has been discovered; and the planter of *Hevea*, present and future, should get in touch with them, so as to be able to recognize this type in seed, seedling and mature tree. Further, they should be able and willing either to destroy the tree wherever found, or else prevent its seeding and subsequent further distribution.

THAT TARIFF ON CRUDE RUBBER.

NOTHING further has been given out from Washington regarding the proposed tariff on crude rubber, which it was announced in February was under consideration in the scheme of revision on which Congress has been for some time so laboriously at work.

In the meantime, opponents of this measure, who include practically the entire American rubber trade, have not been idle; and if, when the rubber schedule is finally reached, there should be serious efforts to place a duty on importations of crude rubber, it will be met with vigorous resistance.

Washington reports had it that the duty on sugar was to be removed or substantially decreased, and this loss of revenue made up by duties on "silks, laces, rubber and other luxuries." This is certainly a whimsical classification. Lace is concededly a luxury. Silk may be similarly described without any serious perversion of language; but the only hypothesis upon which rubber could be so designated is the assumption that its only use is in the manufacture of tires for joy-riders—an assumption that disintegrates the moment it is analyzed. If rubber is not one of the necessities of life, there are none. Admitting that a large part—let us say 45 per cent.—of the crude rubber that comes into our ports goes into tires; not a third of

that 45 per cent. goes into pleasure vehicles pure and simple. The commercial truck, so rapidly increasing in number, certainly escapes any suspicion of luxury. But even of the light passenger cars a comparatively small number serve solely to minister to pleasure. The doctor hurries to his patient in his runabout; the business man goes to office or to factory in his auto, and even the distinctively pleasure vehicle is put to serious uses much and often.

Then contemplate that other 55 per cent. of crude rubber imported into the United States, that goes into the miner's boots, the lumberman's "overs," the arctics and shoes that preserve the health of the nation; into the belting that drives the great factories, the humble packing that keeps the machinery tight and effective, the hose that fights the fire fiend, the hot water bottle that does the work, while the doctor takes the fee; the—but why go on? Rubber takes on a thousand forms that have become absolutely indispensable to the comfort, well-being, and usefulness of mankind. It would seem on the whole that rubber is quite as essential to a well-rounded civilization as sugar—at least as that very considerable volume of sugar that goes into the lollypop, for the destruction of the juvenile digestion, and the five-pound boxes of bonbons, which keep the youth of the land in a condition of perpetual insolvency.

GETTING THE EAR OF THE PRESS.

MR. MANDERS is a fortunate man. He has given the American press a new topic for discussion and started a newspaper item that will go on circulating automatically for months to come. We refer, of course, to A. Staines Manders, who organized so successfully the two London rubber expositions, and who is the organizing manager of the Rubber Exposition to be held in New York next fall.

When he arrived in port recently, to resume, on this side, the work of preparing for the big rubber show, which he has been carrying on so industriously on the other side, he was duly interviewed by the reporters of the metropolitan dailies. He gave them, out of the fullness of his store, much valuable and interesting information about the exposition, its purpose, character, scope and prospects; but what struck them in what might be called their news-center, and was duly recorded and rushed into the composing room, was an incidental observation that a scientist had analyzed the dust of city streets and found among other ingredients, that it contains about 12 per cent. of rubber

worn off from tires. "A truly remarkable discovery," he added, "and probably we are actually swallowing rubber the whole day long. Are we on the verge of solving the problem of street cleaning? Perhaps. Might not a company be formed to keep the streets of New York clean, preserving the sole rights for extracting the rubber?"

This appealed to the newspaper men as something brand new and worthy of exploitation, and it was reproduced in many papers with varying comments. The New York "Sun," with its accustomed jocularly, began the story:

AERIAL RUBBER.

ALL YOU NEED IS A PROCESS TO COLLECT OVERSHOE REMAINS.

It then proceeded to speak of Mr. Manders, the coming exposition, dwelling chiefly, however, on "the 12 per cent." of street rubber.

The New York "American," with several headlines adequately displayed, devoted nearly half a column to the matter, while its Boston namesake seized upon Mr. Mander's statement as a text for one of those large type open-work editorials, often referred to as "rag time," vigorously attacking the present street cleaning methods and pleading for the day when all street dust shall be silently but surely wafted away through suction tubes. (Another use for rubber by the way.) Here are a few strong words from the Boston editorial:

"Some gentle dreamer" (Mr. Manders, though hardly recognizable) "says that a fortune could be made out of the dust in the big cities by collecting it and extracting the rubber from it.

"Twelve per cent. of the city dust, according to the hopeful visionary, consists of rubber worn from rubber tires and rubber pads on horses, and a large fortune could be made for the city by putting this dust through a rubber refinery and getting the rubber back for commercial purposes.

"What is more important than the money-making dream of the scientific gentleman is his statement, 'Few people realize that they are swallowing rubber with every breath as they walk through a dusty thoroughfare.'

"That is quite true."

And thence it plunges, as remarked above, into a ringing argument for vacuum street cleaning.

When the echoes of this interview had reached the rural sanctums, where there is not quite the rush and hurry under which the city dailies go to press, and where there is more time to examine the psychological and ethical aspects of a question, it was discovered that this 12 per cent.—which by that time had increased to 18 per cent.—of rubber floating in the air

had a significant moral bearing. Here are a few lines from a Worcester paper:

"Throwing away millions of dollars worth of rubber in street sweepings, is the latest British indictment of American extravagance. It looks like an elastic joke at the first glance, but the English are not jesters in that class. A. Staines Manders has arrived from London with his pockets full of rubber and rubber plant seeds, and he is going to make ready for a big rubber show in New York in the fall. Manders claims that it has been shown by chemical analysis that 12 per cent. of the dust in city streets is rubber from auto tires and other wheel rims, and 6 per cent. more from rubber boots and shoes. That makes 18 per cent. of rubber in street dust, and rubber is worth from 70 cents to \$3 a pound. Manders suggests that in the future a company might be formed to keep the streets of a big city clean for the right to extract the rubber from the sweepings. That would save New York at least \$100,000 a year, or might if the graft of Tammany were not more elastic than the rubber. And there may yet come among us a theorist to claim that the conscience of man becomes much more elastic because of breathing in so much rubber dust of cities."

All of which goes to show that the royal road to journalistic attention lies not so much through the generous distribution of informing facts and instructive figures as through the casual dropping of some remark that is altogether novel and, preferably, rather startling. The makers of newspapers believe that their readers are not looking so much for information as they are for surprises. They want a jolt. Hence the wisdom of Mr. Manders and his new solution for the great street cleaning problem. Several million people will now hear about the New York Rubber Exposition who in the ordinary methods of disseminating information might never have been reached.

NEW JERSEY RUBBER INDUSTRIES.

NEW JERSEY can justly claim the position of precdence in the form and completeness of its industrial statistics, compiled under the direction of Hon. Winton C. Garrison, Chief of the Bureau of Statistics of New Jersey. While the necessarily slow machinery of the national Census Bureau is still coping with the quinquennial figures of 1909, collected in 1910, the various points of the New Jersey annual industrial census of 1911 dealing with the results of 1910 have already been issued in complete form; the figures affecting the rubber industry being summarized in another column.

One interesting fact is disclosed by this compilation, namely: that an increase of nearly 15 per cent. in the value of the product has been effected with only about 1 per cent. augmentation in the horsepower used. The more economical use of power by New Jersey rubber factories is thus demonstrated.

ARBITRATION ON CANCELLATION OF ORDERS.

AMONG the most annoying sources of loss to a manufacturer is the failure of a buyer to keep the engagements on the strength of which the maker has undertaken special liabilities of an onerous character. Such is particularly the case in the cotton industry, where, in place of the manufacturer laying in his crude stock in bulk, and using it as required, the usual course is for each important sale of fabrics to be covered by a special purchase of raw material, in stock or for later delivery, at the price then current. The whole deal thus forms a chain of transactions, based on each link performing its allotted work. When the final link, acceptance by the buyer, snaps, the whole object of the chain is defeated and what was prospectively a profitable deal turns out just the reverse.

How to treat such a cancel, formed the subject of a valuable paper read at the 1911 meeting of the National Association of Cotton Manufacturers, by Mr. R. M. Miller, Jr., of Charlotte, N. C., president of the Elizabeth Mills, and one of the leading Southern authorities upon the cotton manufacturing industry. Mr. Miller pointed out that the acceptance of any one of the existing legal alternatives involves expensive legislation, long delay, loss of business and considerable worry of mind. As a counter remedy he suggested a greater respect for the moral obligations involved in a contract, and as a practical measure, arbitration by a committee of experts in cotton manufacturing processes, to which body all questions of differences between buyers and sellers should be referred. This board would consist of one member each from The National Association of Cotton Manufacturers, American Cotton Manufacturers' Association, Arkwright Club and National Association of Hosiery Manufacturers; as well as a member representing commission merchants, converters, dry goods and yarn dealers, etc.

To use Mr. Miller's own words:

"A verdict rendered by such a board would be more satisfactory and conclusive than if rendered by a jury of any twelve men, ignorant, possibly, of the details of construction and intricacies of manufacturing; their verdict is often arrived at by personal like or dislike, or more probably guess work."

How far such a plan would be adaptable to the rubber industry is an open question, but the principle suggested by Mr. Miller seems to merit, at least, fitting consideration.

AVIATION AND RUBBER.

TO the popular fancy aviation is still only a circus enterprise—spectacular not commercial. The present mental picture of the public is of scores of inventors working over their plans while the actual flights are experimental under governmental supervision or in the interest of county fairs and boom towns. And also when we speak of the commercial development of a proposition it is apt to conjure up an elaborate picture of freight and traffic uses, and here, of course, the flying machine can hardly hope to enter, as an economic factor. Kipling's skilful story of "The Night Mail," where a flying machine has developed all the capabilities of the present great ocean steamers is not a likely probability. The roadbed and right of way for heavy traffic furnished by the solid—or liquid—earth will always retain their functions; yet it is idle to hold that the mastery of the third great natural element should not contain as great a commercial potentiality as the other two. Its function will be different but equally valuable to our economic existence.

The mastery of the air is so new that its possibilities and method of exploitation are even yet hardly emerging from the speculation of the purely imaginative writer. With the first accomplished flight the world held its breath. Man can fly—splendid! We will have an aviator out in the new suburbs, draw a crowd and sell some "own-your-own-home" lots. Next—what a splendid weapon! Now we can drop a few bombs on our fellowman from a point he cannot guard against; thereupon a few millions are tossed into the war-budget for the purpose of devising a heavy shot-gun that will pot the aviator in the act; or, should he be operating a dirigible, that will explode his gas bag and consume him in its hot flame before the earth is reached. It is inconceivable that man's final conquest of flight holds no more than this for the world.

We are still in amazement that it is actually possible for a man to fly at will and almost under any conditions. The automobile has developed so logically, by the processes of adding two and two together, that when the final achievement was reached a thousand uses were prepared and ready to take advantage of it. But the field of aviation shows no such parallel. From the days of Icarus to the even better known Darius Green human flight was looked upon as a subject for the hardly plausible imaginings of literary fancy and its actual and practical attainment as reserved for angels.

The death of Lillienthal in Germany during his experiments with gliders is within the memory of young men whose recent shaving days were begun with a safety razor. Octave Chanute, who worked along the same lines in this country is still among us, a young-old man; and Professor Langley's epoch-making, automatic flying contrivance that was fished out

of the Potomac after its proving achievement is a memory of less than two decades. Yet in none of these really very recent efforts was there actual practical flight.

And then came the Wright brothers, the men who first actually flew and who at last accomplished the impossible while operating in the unknown. From that date only does the real history of flying begin. There were boys in school in those days who read about and scanned the rough newspaper photographs of the machine who are only now just entering college. It is all so very recent.

Thus it was that on one day less than a decade ago the air was an unconquered domain, and the next day human flight was an accomplished fact. The elemental problem had been solved, practically overnight, and the rapid march of practical and commercial development had commenced. Compare it with the slow development of the steamship, the railroad or the submarine. In 1903 Wright flew for fifty-nine seconds—marvelous. Only eight years later Fourny flew for over eleven hours—an achievement over *six hundred and sixty times greater!* In those early days Santos-Dumont flew *eighty* yards and France was deafened with the noisy acclaim. In 1911 Gobé flew over four hundred and fifty-nine miles, or over *ten thousand times as far!*

It was a marvelous fact that a man, one single man could fly at all in a heavier-than-air machine; yet since that initial achievement of Wright's of sustaining himself in flight for fifty-nine seconds an aviator has remained in the air with three passengers for over one hour. Such progress is along practical, commercial lines and points unmistakably to a commercialized future rather than to the earlier, conservative views of a sport or circus "stunt," and the limited field of the purely spectacular.

In comparison with the ordinary crusted slowness with which governments officially interest themselves in new and radical inventions is the avidity with which the aeroplane has been seized upon. England and the United States alone among the great powers seem to be working slowly and with an unprogressive caution.

The great amount of attention that France is giving to this new branch of warfare, is indicated in the remarks made in a recent discussion of the national war policy in the French senate by Senator Alexander Millerand who outlined the aviation program of the government, for which from \$4,500,000 to \$5,000,000 yearly is asked. Fifteen dirigibles, he said, would be constructed, but the special arm of France was the aeroplane. This year the army could mobilize 334 aeroplanes, divided into 27 squadrons and manned by 344 officer pilots and 344 observers. An aeronautic regiment is also to be constituted.

Russia has started in with a fleet of 300, and has appropriated 4,500,000 dollars for the purpose of further developing military aviation. Germany has apparently

for years been pinning its faith to the dirigible balloon, generally of the Zeppelin type, and so far has only a moderate fleet of some 100 aeroplanes; but this is steadily being increased. She is also increasing her staff of flying men by schooling them in batches of fifty at a time, which is an indication of a heavy increase in this branch of aviation. Italy, Austria and Spain are following, and the Italian conquest of Tripoli has given the Italians the first opportunity to use the aeroplane in actual warfare.

In addition to these military planes there is a vast number of aeroplanes being continually manufactured for private persons. Almost every daily paper carries cables from countries all over the world detailing flight and the breaking of new records for distance, speed or passenger carrying. The manufacturing of parts and fabrics and appliances has grown, in a few brief years, to most respectable proportions. At the beginning of this year, in the United States alone, there were 324 companies devoted to the aeroplane and aviation industry. Of these many are manufacturers of parts or aeroplane motors, fabrics and balloons, but of those who devote themselves solely to the manufacture of aeroplanes there are 129 manufacturers.

The United States has six magazines devoted to aviation, while over fourteen are published in Europe. At the beginning of this year there were in the United States alone over 100 licensed aviators plying their rather hazardous calling. In the international aviation organization, known as the Federation Aeronautique Internationale, there are sixteen clubs representing, the United States, France, Germany, Holland, Belgium, Denmark, Norway, Sweden, Great Britain, Spain, Italy, Austria, Russia, Switzerland, Hungary and the Argentine Republic. In each of these countries are numerous local aviation organizations and societies. There are probably, all told, including small with large, about 75 aviation clubs in the United States. Twenty-five of these are important clubs, incorporated and affiliated with the Aero Club of America, located in New York, which is the oldest and largest of them all, with a membership of 555.

The aeronautical exhibition of Paris is a regular institution. In their exhibits a little over a year ago between 60 and 70 firms exhibited complete flying machines while the total number of exhibitors of accessories and parts totaled over 300. And one remarkable fact stood forth, all the stronger when it is recalled how few the years since Wright made his fifty-nine-second flight, while all the rest of the world was still in the stage of early tentative and unsuccessful experimentation—there were no experimental machines or aeroplanes in the exhibition. There were none that had not gone through the experimental and actual tests and none that had not actually flown before being exhibited. It was, in fact, a thoroughly commercial, trade exposition. As indicating the general interest in

this country in aviation, mention should be made of the International Aviation Exhibition that will be held from May 9 to 18 next in the Grand Central Palace, New York.

There are today in this country 20 manufacturers who have devoted their energies to balloons; these range from the old-fashioned hot air and gas balloons of the spherical type on up to the modern types of the dirigible. Fourteen firms confine themselves, according to the Aero Directory, to dirigible balloons. Eighteen firms are engaged in the manufacture of balloon and aeroplane fabrics. Eight firms manufacture parachutes, and six firms are listed as engaged in the manufacture of wheel rims for the underbody alighting gears of aeroplanes. Five companies design and make these alighting gears complete. Two firms are marketing aeroplanes without engines, and twenty-two are manufacturing and selling aeroplane parts. Four houses are listed as manufacturing special bumpers (rubber) and six more offer special shock absorbers, and as we have said above, 129 manufacturers in the United States are manufacturing aeroplanes, complete. Thirty-one firms manufacture gliders; four construct hangars, that is the aeroplane or dirigible garage; one manufactures a special aeroplane gyroscope; four construct hydrogen gas generators for dirigibles and balloons, and thirty-nine make models of flying machines, while fourteen supply model builders' supplies for the model machines for inventors and amateurs. Seventy-six manufacturers of motors are offering special aeroplane and dirigible motors.

Fifty-four design and manufacture aeroplane propellers; six, aeroplane skids for their landing gearing; four, steering gears; eight, steering wheels; sixteen, tires for the starting and alighting wheels; seven, specially drawn or braided wires and slender cables for the aeroplane braces and gearing, and twenty-five manufacturers have special varnishes solely for the treatment of balloon, dirigible and aeroplane fabrics. These figures cover only that portion of the trade list that deals directly with aviation and do not consider the indirect accessories such as castings, forgings, magnetos, lubricants, alloys, etc. And yet these latter also benefit from the natural radiating influence of these new commercial developments. This, moreover, is only for the United States; in Europe the trade is developing with quite as much, if not even a greater, energy and rapidity.

* Certain of the standard aeroplanes, or, in fact, all of the designs, today have a direct trade interest for the rubber manufacturers. The alighting devices and under gearing all now depend upon wheels—a pair of suspended bicycle wheels with their pneumatic rubber tires, but designed according to the special requirements of this service. Here we note that fourteen American tire manufacturers are listed as supplying aeroplane tires. All of these and several others also manu-

facture rubber bumpers or shock absorbers for flying machines. These are the more obvious and immediate phases that connect the field of aviation with the rubber interests.

But in another direction there are marked signs of an important and new development; this is in regard to the fabrics used in covering the wings of the aeroplanes and in the covering envelope for the gas bag of the dirigibles. Heretofore these fabrics, usually of silk, were carefully treated with certain varnishes until they became as gas-tight as it was possible for human skill to make them. Each balloon manufacturing plant had its own carefully-guarded formulas for these varnishes and treatments, and for a long time this branch of the industry was more closely connected with the paint and varnish trade than elsewhere. In fact, the five manufacturers of varnishes and compounds for treating the fabrics of aviation are, with one exception, all closely allied or identified with the paint and varnish industry. This exception is a rubber company which manufactures varnish for an "aero cloth."

This tendency is more strongly emphasized by the fact that four rubber companies are manufacturing a fabric for aeroplanes and balloons, and one importer advertises a "rubberized" fabric for similar purposes. From England comes a booklet from a great rubber company in which they call attention to their two lines of rubber-proofed cloth, one an aeroplane fabric, and the other a balloon cloth. They cite a number of aviators and balloonists, headed by Mr. Grahame-White, who have used this rubber-proofed fabric, with the most satisfactory results. After its use for a week in a dirigible, that remained inflated during that time, it was stated that the loss of gas was but one-half of that which had occurred during a similar period in a previous dirigible of different fabric. The actual loss of gas was but one-half, although the capacity of the dirigible was one-third greater. Certainly a most satisfactory improvement and one that indicates that rubber and rubber products are in the field of commercial aviation to stay.

Mr. Grahame-White was similarly pleased with the use of the rubber-proofed fabric in his aeroplanes and plans to have it used on a number of new machines which he is designing.

The Continental Caoutchouc & Gutta Percha Company, of Hanover, Germany, also are in the market with a Continental Balloon Sheeting for which they claim the highest degree of gas tightness and breaking strength. Captain Thomas S. Baldwin is also out with a vulcanized proof material which he claims to be the first rubberized aeroplane material on the market. For this fabric he claims the greatest advantages for aviation use. Heat and cold have no effect upon it and it is not open to the dangers that attend stretching,

shrinking or cracking. Glenn H. Curtiss now uses a rubberized fabric on all his aeroplanes, while our government has also used and is using it in the governmental dirigible and spherical balloons of the U. S. Signal Corps. Despite the weight of rubber as compared with other substances used in earlier days the weight of the cloth can be kept down and such a cloth can be made in a weight of only three ounces to the yard. Of course, where conditions permit, the weight can be increased for harder usage.

Such has been the progress of aviation in the commercial field. Less than ten years ago it was a non-existent factor, or at the very best was commercial only to the extent of laboratory experiment and the slight needs of scattered inventors and experimenters; now it is a manufacturing business covering a wide field in the world of trade. The conquest of the air was among the things unknowable and impossible. Then the heavier-than-air machine was a mechanical impossibility while the dirigible, an advance upon the helpless, drifting balloon, was still in a state of fragile helplessness whenever there was the slightest atmospheric disturbance. In those same recent days a few small factories were ample to supply balloonists with their gas bags for ascensions at county fairs and suburban lot sales. The only mechanical problem before which man stood helpless lay in the atmosphere above us. Steamships had reached the stage where successive improvements lay only in adding size and luxurious equipment; submarines were a regular part of every first class naval power—and many of lesser dignity. They had even reached an approximation of Jules Verne's imaginary "Nautilus," and only the air remained as virgin a field as it was in the Biblical days—"Yea, four things I know not: The way of an eagle in the air; the way of a serpent upon a rock; the way of a ship in the midst of the sea; and the way of a man with a maiden."

Long since the naturalists had solved the way of the serpent on the rock; engineers had mastered the problem of ocean navigation; and the way of a man with a maiden, while it may not have reduced itself to terms of a general philosophical formula, yet had apparently resulted in some kind of practical arrangement eminently satisfactory to all parties; only the eagle in the air remained as the insoluble factor. And a few years passed, less than a decade, and the flight of the eagle in the air has become numbered among man's practical achievements. And out of this latter is already growing, in fact has grown, a great industry which in its turn has reached out and stimulated and extended other activities. It is growing faster than its records can be set down and tabulated. The compiled statistics of to-day are obsolete or conservative almost before they are read in the published page of tomorrow, and yet, with all this growth, it is even now only in the nursery of its career.

Castilloa in Cuban Valleys.

By the Editor of "The India Rubber World."

Cuba from the East.—Grasping Customs' Officials.—Santiago and the Casa Granda.—On Board the "Habana."—Along the Coast to Guantanamo.—Beautiful Baracoa Bay.—In the Footsteps of Columbus.—Into the Wilderness on Horseback.—Cocoanuts, Cacao and Castilloa.—Days of Exploration.—Down the River.—A Night Ride Along the Beach.—On Board the "Gibera."

I HAD visited Cuba a number of times, but had always entered by the front door, that is through Havana, and had a feeling that perhaps I did not get that intimate knowledge of the island that might come through a less usual mode of approach.

hunted up the American consul who took hold promptly and said he would have the revolver for me ere long. Then when I was seated in the train the steamship agent appeared and said he could do nothing.

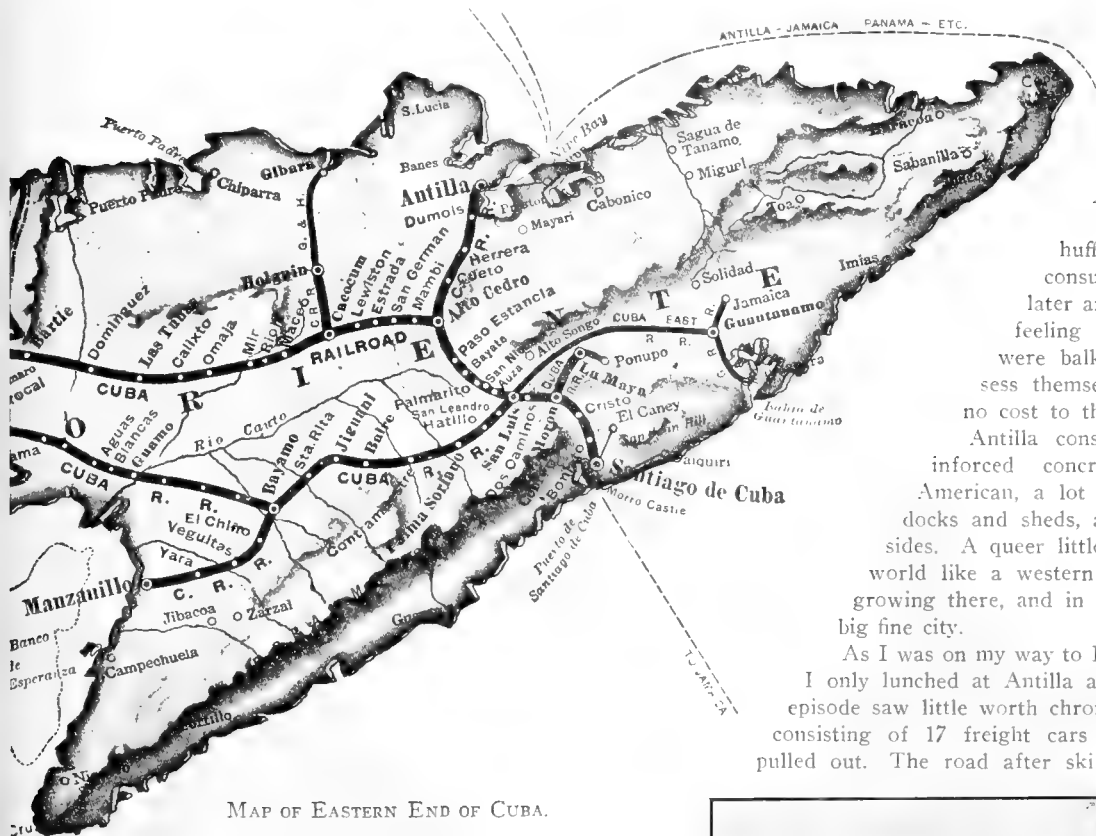
"Very well," said I, "But I am going to have that revolver. It has been in use for 20 years. I am a tourist in transit and you know that the customs had no business to seize it. If it isn't produced I shall appeal to our own State Department."

"Then I shall withdraw from the case," was the dignified reply. "Withdraw!" was my amazed ejaculation. "You cannot withdraw. You have not even gotten into the affair. A dead man cannot die."

He stalked off in a huff. To end the incident, the consul got the revolver for me later and I had the satisfaction of feeling that the customs officials were balked in their effort to possess themselves of a fine weapon, at no cost to themselves.

Antilla consists chiefly in a fine reinforced concrete hotel, modern and American, a lot of railroad and steamship docks and sheds, and a series of barren hill sides. A queer little town, looking for all the world like a western mining settlement, is fast growing there, and in time it will doubtless be a big fine city.

As I was on my way to Baracoa by way of Santiago I only lunched at Antilla and except for the customs episode saw little worth chronicling. At 4.30, our train, consisting of 17 freight cars and 2 passenger coaches, pulled out. The road after skirting the bay ran through



MAP OF EASTERN END OF CUBA.

It was, therefore, with a lively anticipation of happenings of interest and perhaps adventure, that we entered beautiful Nipe Bay at the far end of the island and headed for Antilla, the new commercial port of the railroad and steamship lines. The big boat anchored far out and a small tender took passengers and baggage to the pier. The former were allowed to wander at will but the baggage was piled in real Cuban confusion in a small slat-covered inclosure. And there my troubles descended upon me. The courteous captain of the steamer assured me that there would be no trouble with customs, that the company's resident agent, to whom he introduced me, would see me through. But the customs men ransacked my things; broke fragile curios; spent half an hour discussing whether or not a sawfish jaw was a weapon of war, and finally took my heavy service revolver from its worn holster and decided that it must be sent to Havana. I then sought the agent in his office, who kept me waiting half an hour, while he fussed with some papers. Finally he listened to my story and said.

"Well, I have had no lunch yet. You would not wish me to go without lunch, would you?"

At last fifteen minutes before my train left for Santiago, I



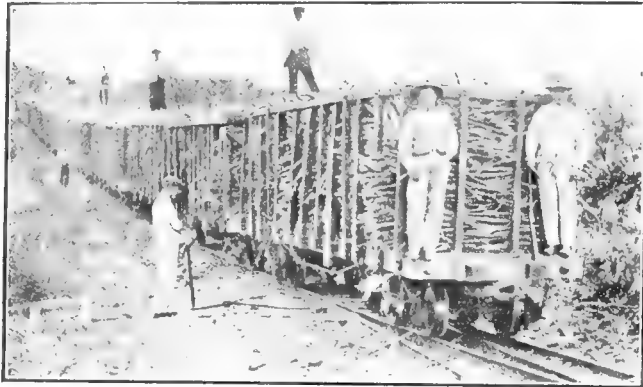
RIO DE MIEL (HONEY RIVER.)

jungle for miles, with an occasional settlement, the center of a sugar estate or a lumber camp.

At 6.30 we stopped at Alto Cedro for dinner. The railroad

restaurant was run by a thrifty Chinaman, who gives the traveler all he can eat in twenty minutes for an American dollar. He also makes it easy for the eater to hurry. At each place is a stack of six plates. Throughout the length of the wide tables are stacked huge plates of chicken, ham, beef, beans, cakes, pies and

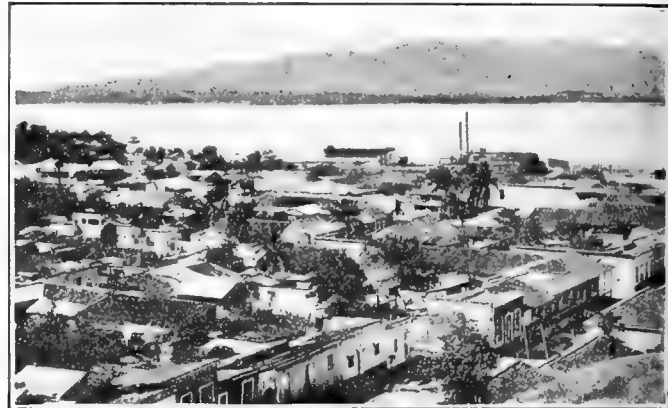
flourish there unless it were the *Manihot*. I knew little of Baracoa beyond the fact that it was the first capital and the oldest town on the island. It was out of the track of the tourist and few Americans or even Cubans seemed to have been there. I finally engaged passage on a Cuban steamboat that ran from



TRAIN LOADS OF SUGAR CANE.

doughnuts, and the way viands disappear is astonishing. In the midst of our meal the through train from Havana to Santiago steamed in and we got aboard for the last section of the railroad journey. This train was equipped with Pullman cars and was thoroughly comfortable. The roadbed was also good and we ran smoothly through many thrifty looking villages and finally reached the narrow pass of the Cristo and slid down the steep hill to Santiago. The big stone station was crowded. Ignoring much native advice as to the various hotels, I chose the Casa Granda and in a big barge pulled by a couple of hard galloping mules, was soon jolting up the steep crooked streets to the business and residential part of the city. To my surprise I was welcomed at the hotel by the proprietor, who had formerly been head waiter in a well-known French restaurant in New York. He recognized me, and thereafter the best that Santiago afforded was mine. I should like to pause here and dwell upon the beauty of the old city, on the visits to San Juan Hill and the other battlefields, to comment upon the queer mingling of American and Cuban customs, money and sports; but after all my objective was Baracoa and *Castilloa*, so I must perforce refrain.

Perhaps I should make it plain that I had heard of certain sheltered valleys at this end of the island of Cuba, where rubber was already flourishing, having been planted by some of the wealthy cocoanut growers. What the rubber was no one seemed to know. Indeed, as I looked at the barren hills surrounding Santiago I could think of no rubber tree that would be likely to



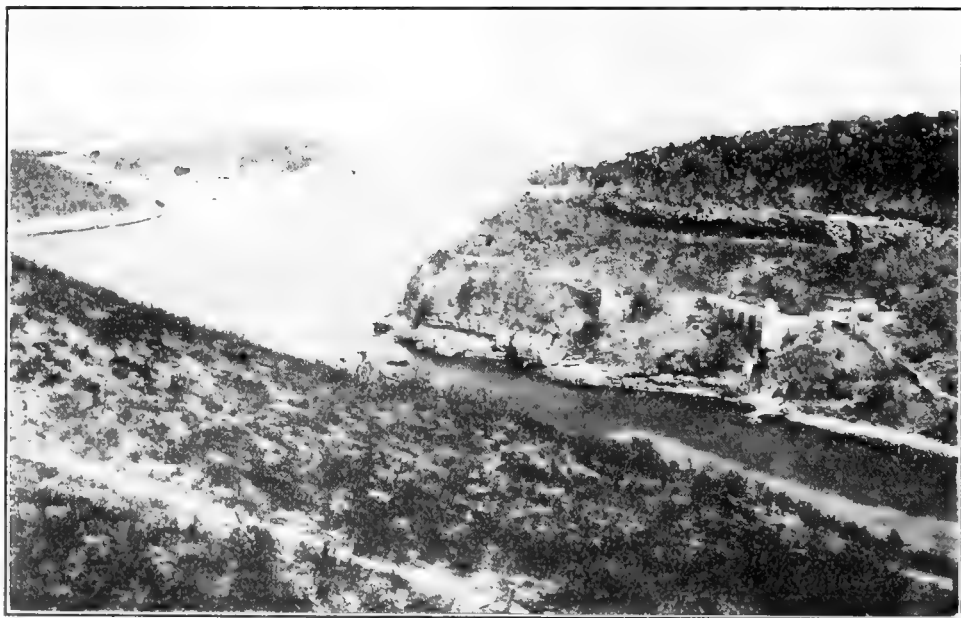
LOOKING DOWN ON SANTIAGO.

Santiago to Havana stopping at many ports *en route* including that which I sought. Awful tales of dirt, garlic and discomfort were passed out to me by a couple of American drummers who had travelled on the same boat. As usual the tales were fictitious. I found the *Habana*, although very small and incredibly slow, clean, well-found, and handled by Spanish-speaking officers, who were most dignified and courteous.

We sailed at nine in the morning, out through the beautiful land-locked bay and the narrow and crooked channel where the *Merrimac* was sunk, by grim Moro Castle and then followed the coast. At four that afternoon we ran into Guantanamo Bay where three American battleships lay at anchor.

After discharging a little cargo and taking on a little more, we steamed out again and continued along the coast. It was very calm and clear and warm, and so bright a moonlight night that we stayed on deck very late, watching the dim shores slip slowly by. When we awoke the next morning we were off the rugged and very picturesque shores of Baracoa. A little later we entered a narrow passage in a reef and dropped anchor in a tiny oval harbor on the steep encircling slopes of which lies the city. Back of it and visible out to sea for miles towers a great mass of rock, 2,000 feet high known as "Yunque" the Anvil.

Here "Don Angel" met us with a carriage and boys to carry the luggage and conducted us to "El Siglo XX" Hotel, which as anyone would guess means the Twentieth Century Hotel. This hotel was thoroughly Spanish. Our rooms fronted on a



ENTRANCE TO SANTIAGO BAY, WHERE THE MERRIMAC SANK.

broad balcony, that overlooked a tiny place, where we took all of our meals. The delicious quantities of this town was

however, not boast a dentist, an oculist or an automobile. It was during his first voyage in 1492 that Columbus entered

Baracoa harbor. It was first called Puerto Santo but afterward the name was changed to Puerto de Baracoa. The secretary to the great Admiral describes the discovery and the landing very graphically. The little caravels anchored off shore and Columbus jumped into a boat and had gone in to take soundings. He soon found the concealed mouth of the harbor and was so delighted with the freshness and beauty of the trees along the shore, the clearness of the water, and the many birds, that he expressed a desire never to leave the place. Quoting from the original "letter,"

"To give a true relation to the Sovereigns of the things they had seen, a thousand tongues would not suffice nor his hand to write it for that it was like a scene of enchantment. He desired that many other and prudent witnesses might see it and he was sure that they would be as unable to exaggerate the scene as was he."

As far as I could learn, the mountain valley estate where the rubber grew, and which was known as "Nunez," was only five miles out of town and the ride was to be but a brief one. When,



HARBOR AND BOAT LANDING, BARACOA

indescribable. The streets were most ingeniously ill-paved except for a stretch of about 300 yards that was smooth asphalt. This was laid by a former reform mayor (in front of his own residence) and the townspeople point to it with much pride. Carriages were few, as a mile or two outside of the city only trails existed. Nearly everyone rode horseback and there were many fine horses, beautiful trappings and dashing and graceful riders. As the country is mountainous, bullocks, most surefooted of beasts, are used instead of pack horses. They are big black fellows often gaily caparisoned and much more picturesque than any other pack animals that I have seen.

We fell asleep that night to the music of the bells in the nearby cathedral. The next day we explored the city, bargained for horses to take us into the valley where the rubber grew, and bought a few necessities in the very excellent stores. Then we looked up the American consul, who is also a physician and is doing a deal of good in a community where fees are small and not promptly collectible.

Baracoa is very beautiful with its tiny bay, its stretches of sandy beach, its close encircling mountains and its red tiled houses. The sky is constantly crossed by fantastically drifting clouds and the sunsets are wonderful. While the stores are exceedingly well equipped, the city could,



MAIN STREET, BARACOA.

therefore, we did not get away at seven in the morning as we planned, and indeed were two hours late in starting. I fancied that it made no difference at all. I was also perfectly content to

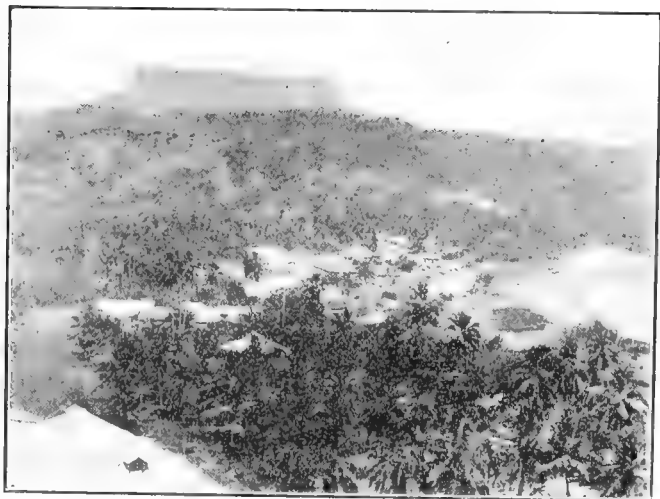
have José follow with the pack horse and our provisions and extra clothing, when he got ready. We, therefore, Don Angel and I, rode out of town, forded a river and were soon on a mountain trail that followed the erratic course of another and larger river. When I say followed, I mean that in its fullest



TYPICAL CUBAN LANDSCAPE.

sense, for when the banks grew too precipitous on one side we forded the stream and rode along the other. By mid-afternoon we had crossed and recrossed so many times that I had lost count and was wondering what "five miles" Cuban meant in English. The scenery however was grand, the day not too hot, and the little horses sure-footed and easy to ride, so I was contented. At last, about five o'clock, we crossed the river for the last time, scrambled up a steep bank, passed through a thicket of giant bamboo, and found ourselves in front of a huge thatched house surrounded by dilapidated outbuildings. We were welcomed by a big, athletic negro, who was in charge of the place, his greetings being seconded by half a dozen thin hounds, many naked pickaninnies and the lady of the house, who, suckling an infant at her breast, and a big black cigar in her mouth, gave us a tiny yellow hand and warm greeting in Spanish.

The big house had evidently been a planters' mansion at one time, but its negro tenants had allowed it to go to ruin as fast



BARACOA, WITH YUNQUE IN THE BACKGROUND.

as it pleased. The narrow veranda in front had sagged to an angle of about 45 degrees, and polished smooth by many bare feet it made a slippery ascent; but we negotiated it safely and were soon in the great living room, seated in wrecks of massive chairs, covered with stretched cowhide. We at once formed the center

of an interested circle of negroes, big and little, dogs, hens, pigs, goats and turkeys, all of whom seemed to have the run of the house, while Don Angel like a patriarch of old, patiently explained the cause of his visit, asked after the health of each individual and listened to voluble descriptions of plantation and domestic happenings, garnished with gusts of rollicking laughter. Night fell and the big room was lighted by half a dozen of the most primitive of all lamps, tin cups filled with cocoanut oil, on the top of which floated cotton wicks.

Apparently José and the pack horse were not expected that night, for suddenly the lady of the house seized a chicken, wrung its neck, without disturbing the feeding infant or losing the ash from her cigar and still chattering made her way to the open shed in the rear of the house, to get supper. This she prepared very quickly over the usual fire of sticks built between three stones. We were very hungry and the coffee, chicken and sweet potatoes were exceedingly good. She also gave us white bread, of which she was very proud and the vicious jab she made at an eight-inch centipede that ran across my piece as it lay by my plate, showed she knew it was too good for the natives.

The nights are cool in these mountain valleys and I had begun to wonder about our sleeping arrangements. Don Angel however was equal to the occasion and showed me to a cot in an



SAN JUAN HILL.

adjoining room where I stretched out with my rubber coat over me for warmth and was soon fast asleep. In reply to my queries he had assured me that he had a comfortable bed in another room, and I had supposed that he was at least as well off as I. But I discovered later that he had placed three of the dilapidated chairs in a row and slept upon them while I had the only cot. My heart warmed toward him for this bit of modest courtesy. Indeed during the whole of the trip he unobtrusively saw to it that I had the best of everything—horses, food and service—and was the true Spanish host ever thoughtful of guest and forgetful of self.

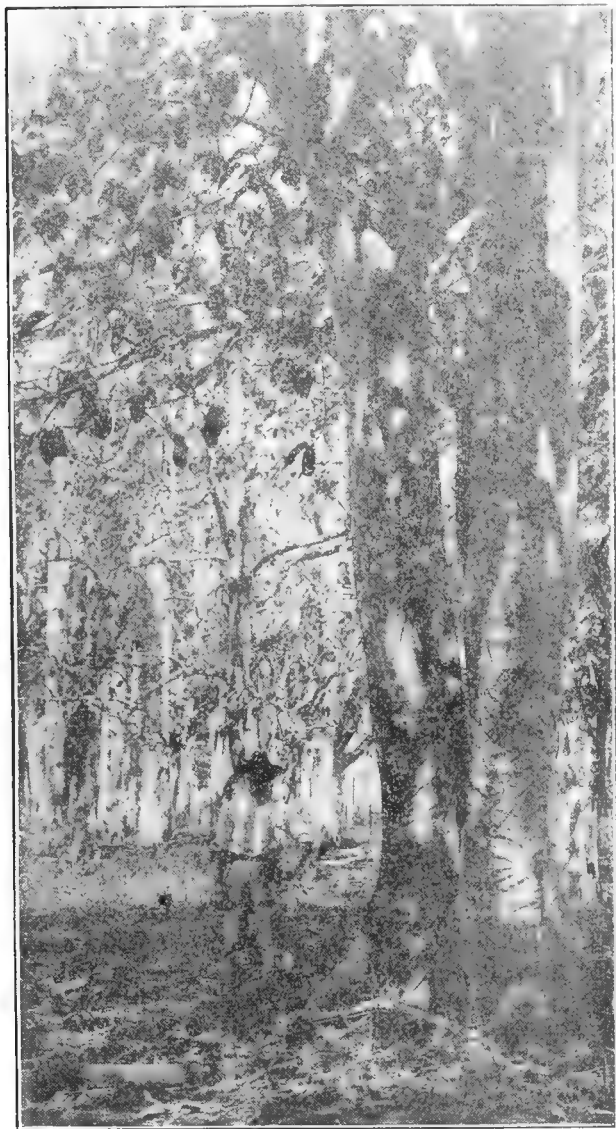
The night passed without events of importance. Towards morning I wondered why I could hear the crowing of the cocks so near and I found out at daybreak that three bold-eyed fighting cocks were tethered close to my bed. I also awoke once in the night when a heavy shower drove a score or more of the big black hogs to cover under the house, where they squealed, grunted and crowded one another for half an hour before settling down to sleep.

The morning broke clear, cool and delightful, and after coffee we went out to view the plantation. The valley broadened out and consisted of a fertile alluvial plain some ten feet above the river. Here were thousands of cocoanut trees in full bearing. There was also coffee, many acres of cocoa and a forest of huge bananas. The plantation needed only a little care to make

it a wonderful producer, nor was there any sign of the disease that had killed off so many of the cocoanut trees down in Baracoa, while the cocoa showed no signs of the dreaded "witch-broom."

It was, however, rubber that we were in search of and we found it. The trees, *Castilloas*, were very large and thrifty. The leaf suggested the *Guatemalensis* and I was pleased when Don Angel remarked that a near relative of his had married the daughter of the president of Guatemala and brought the seed from that country. The latex was thick and rich and flowed even in the middle of the day. There were only 20 or 30 of the big trees, but on the ground beneath were hundreds of young seedlings. In fact here was the nucleus of an exceedingly valu-

the mountain side took us up one of the steep trails as far as the horses could go; then we climbed. We found the tree, the "Lechugo," but the latex was of no value commercially and except for the exercise and the fine appetites developed by it the



LARGEST *Castilloa* IN CUBA, 58 YEARS OLD.

able *Castilloa* plantation. We coagulated some of the latex with alcohol and got a clean, strong and mature rubber. It was here that I added a rather unusual bit of rubber information to my store. Don Angel in tapping one of the trees got some of the latex in one of his eyes and was suffering intensely. I suggested warm water and we went back to the house for it. The lady of the house, however, knew a better remedy, namely human milk. This she applied dexterously and promptly from her own ample store and the pain was at once allayed.

The tale of an indigenous rubber tree that could be found up



Castilloa AT NUNEZ, SHOWING SEED PODS.

excursion bore no fruit. On our return we found that the pack horse had arrived and we dined abundantly.

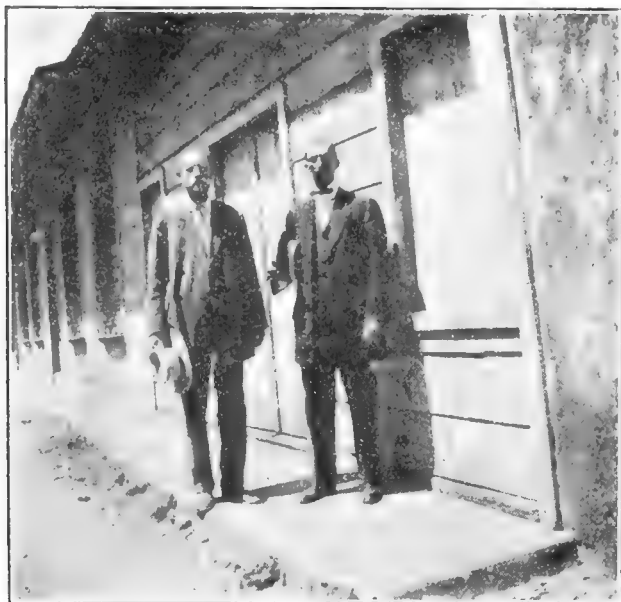
Another day we went far up the mountain taking a score of young *Castilloas* with us and set them out with appropriate ceremonies. This trip was more particularly for the purpose of observing the forest growth and the rubber planting was but an incident.

More and more was I impressed with the beauty of this hidden valley. It was so sheltered that no hurricanes nor even high winds could harm it. Brief showers came every day, the air was balmy, not too warm in the middle of the day and cool at night. Above all was the freedom from mosquitoes. I was also much impressed by the athletic manly mountain negroes. They were of a far better type than those in the towns. After a few days of exploration it was easy to understand why it was that the Spaniards could not conquer Cuba. There were scores of fastnesses where one man would be safe from a regiment. There was food and water in abundance and a climate where one needed only the most primitive of shelters from the rain or the evening dews.

During one of the trips I found a curious hard-shelled, jointed worm some ten inches long and about an inch through. I captured it for a curio in spite of the earnest protests of Salvador, my guide. As far as I could make out from his broken Spanish the worm was the dreaded Cocosi (if that is the way to spell it), and those who meddled with it became blind. However, I tied a string around it and carried it as far as the house and should have brought it back to the States, but one of the black pigs bolted it while my back was turned. As for the blindness I have never—but stay—I wonder if that was what ailed my eyes?

And so we explored the Rio Thor, the Rio Blanco and other rivers, stopping at the few negro homes, fed on tropical fruits, drinking the delicious milk of the green cocoanuts, and growing ever more fascinated with the country. Our dinners each evening at the plantation house were abundant, picturesque and eaten with enormous appetites. The freshest of eggs, fish from the rapidly flowing river, fresh pork and chicken. What if there were but two plates? What if my goblet, because of its broken stem, had to be set in a tin can to maintain its equilibrium? True hospitality was there. The dark host and hostess hurried anx-

iously about with new and appetizing dishes. The pickaninnies gazed with wide open eyes, and the circle of gaunt hounds sat and slavered at every mouthful. A bone thrown to them resulted in a mass play that had football beaten a mile. Speaking of the dogs, they are really to be respected. Left to guard a house, no one may enter. They will fearlessly attack the huge



DON ANGEL AND THE WRITER

wild boars that are found in those mountains and harry them until their negro master makes the kill, or as is often the case is himself killed. In the last case the dog will stay for days watching and starving, until help comes. These boars, huge fellows, four feet high at the shoulder, with tusks eight to ten inches long, are vicious only when attacked. We saw their spoor many times but as we were not hunting them we had not the slightest uneasiness, even though we knew that they were aware of our close proximity.

The mountain negroes are very friendly toward Americans. Thus, Salvador had named one of his girls, America, to show his admiration for Uncle Sam.

Incidentally we tapped some bread fruit and some chicle trees while at the plantation. The latter gave a fair grade of chicle, while the former produced an exceedingly sticky gum that may or may not have contained a certain amount of rubber.

Finally the day came for our return to Baracoa. We said our good-byes not only to Salvador and his family but to all of the neighbors for miles around who had come in for the purpose. The horses had been dispatched down the trail hours before, as we were to go a part of the way by boat. The one o'clock start was made at three. The small flat bottomed boat was more than crowded. Beside the boatman, Don Angel and myself, were America who was going to visit relatives at the Boca, a goat, two kids,

bananas, cocoanuts, some furniture, saddles for the led horses, etc., etc. The river, although broad, was at that season of the year a series of ponds connected by rapids of greater or lesser turbulence. We progressed partly by paddling and partly by poling. Half a mile from the plantation America's little yellow dog was discovered swimming calmly in our wake, so we laboriously poled back to return him to his home. Then we started on our way again.

This river ride was long to be remembered, so beautiful were the forested shores, so clear was the water, and so balmy the air. At nightfall we were still far from our destination. The river was broad and deep now, and the boatman hugged the shore as he poled. We no longer shot rapids with the boat's bottom thumping on hidden rocks, the prow swinging from side to side. One of those thumps had loosened a plank and America was cheerfully bailing out the water that swashed to and fro in the bottom of the boat. Soon we heard the roar of breakers and the evening breeze came up the river strong and salt. Later we crossed to the further side where showed a light; tied up at a rickety pier; scrambled ashore by sense of touch rather than sight and found a tiny river settlement. Here under a huge shed, in one corner of which was bar and kitchen, we ate a big meal and sat around and smoked as if it were not evening and we had many miles more to go before we reached home. Next followed a horseback ride for a mile or more over a narrow gauge banana railroad. I presume my horse could see where he was going, I am sure I couldn't. The road ended at the bank of a deep lagoon on the further bank of which was the dim outline of what seemed to be a ferry slip. After many hails a big boat came slowly across, we embarked; the horses, stripped of their saddles, were urged into the water and we crossed. I did not wonder at the reluctance of the horses when I learned that the occasional heavy splash with the accompanying shower of phosphorescent sparks, meant sharks, with which the waters swarmed. Then came a long ride along the beach, water on one side and shelving coral cliffs on the other. I noticed that the



PLAZA AND CATHEDRAL, BARACOA.

thin strip of beach along which we rode began to be wet by an occasional wave. The tide was rising. Soon Don Angel with

a ring of anxiety in his voice, urged greater haste. So I lustily whaled my mount, dug the spurs into him and yelled, but only succeeded in stirring him up to a slightly faster walk. He was nearly tired out. My friend's anxiety increased. His little bay seemed quite fresh and he spurred back and helped me urge

mine. But it did not work. It began to look as if we were to be caught between the sea and the high coral cliffs. Just then I saw an opening in the reef and swinging off I pulled my beast up a steep path to a grassy pasture above. Talk of luck! that was the path we were seeking. An hour more and riding turn and turn about and leading a spent horse we reached Baracoa not a bit the worse for our somewhat unusual ride.

It is fully as hard to get away from Baracoa as it is to reach it. We waited several days for a boat.

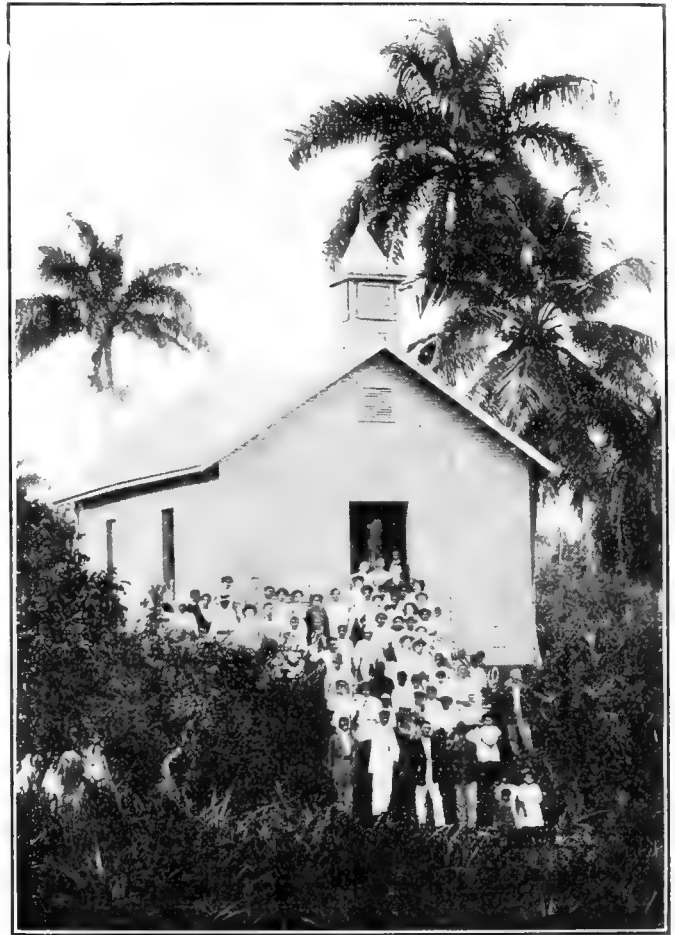
and finally got passage on the *Gibara* of the Sobrinos de Herrera and through the good offices of Don Angel were com-

was smooth and the coast line was enchanting, so we spent much time on deck.

Steaming out of the harbor recklessly at six miles an hour (full speed) we passed the cocoanut plantation "Jaitecio" and were on our way. At four that afternoon we reached the hidden entrance to Sagua de Tanamo Bay where we lay for twenty-four hours taking on mahogany. Here we had our meals on the upper deck under an awning and were very comfortable. It was during this wait that I became acquainted with the Reverend Juan. He appeared a short, thickset, energetic English business man, but was really a whole-hearted, hustling Baptist missionary preacher. I learned later that he had converted 65 per cent. of the whites in that part of Cuba to his Faith; had five little churches and something like a thousand communicants. Like the early Jesuits, no hardships were too great for him. He swam rivers, slept in the forest, acted as physician, nurse and



BAMBOO THICKET.



ONE OF THE REV. JUAN'S CONGREGATIONS.



PRIMITIVE MOUNTAIN LAUNDRY.

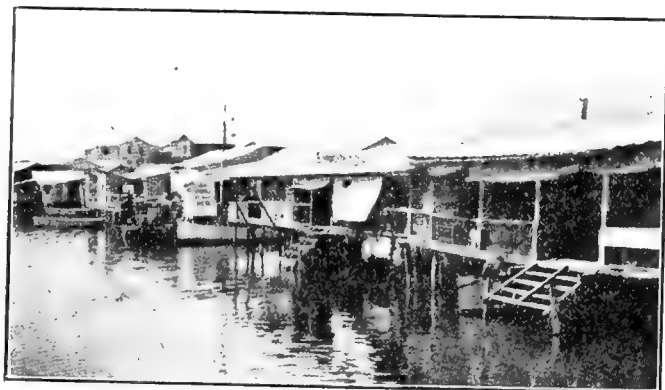
counsellor to the Cuban negro and was exceedingly loved. He was full of information concerning the country and I was glad to verify my figures on temperature with his and clinch my conclusion that the mountain valleys, sheltered though they were, were hardly fitted for *Hevea*.

He pointed out a cocoanut plantation owned by an Englishman that had been attacked by disease but had recovered and was flourishing because the owner had burned every affected tree. He told us of the great iron deposits along that shore, one containing thousands of acres, purchased by an American, and of the preliminary location of a huge blast furnace. As the Cuban Government, however, demanded six dollars a ton for all machinery brought in, the project was abandoned.

Our leisurely loading finished we pulled out for Preston where the United Fruit Company is operating a large sugar mill and

fortably quartered. We could not return to Santiago direct but were obliged to go to Antilla and thence by rail to Santiago. The *Gibara* was not as large even as the *Habana*, but the sea

has also erected a large hotel, where we planned to spend the night. Reaching Preston at nine in the evening we found the big barracks of a hotel crowded from attic to cellar. So the Reverend Juan engaging for us a sail boat, we embarked and



CAIMANERA, THE WATER FRONT AT GUANTANAMO.

sailed and drifted across the bay landing at half past two in the morning and a half hour later were contentedly settled in the comfortable Railroad hotel at Antilla.

PLANTATION EXPENDITURE.

ONE of the most valuable features of the special consular report upon Malayan Rubber Growing, abstracted by THE INDIA RUBBER WORLD in the issue of January last (page 161), is the pro forma detailed statement of the expenses incurred by a thousand-acre estate, with a yearly production of 400 pounds per acre, from 120 trees. These interesting tables were prepared by Mr. C. C. Malet, formerly connected with the Department of Agriculture of the Belgian Congo, but at present a licensed valuator in the Strait's Settlements.

As mentioned in the brief reference to these tables, in the January issue, the total cost of production, freight to Europe and sale there, represented 25.845 cents per pound.

TOTAL EXPENDITURES.

This total cost is formed of the six following items:

	Expenditure.	Average cost per lb. on basis of 400,000 lbs. per annum.
1. General estate expenditure.....	\$ 48,840	12.210 cents
2. Tapping expenditure.....	26,700	6.675 "
3. Factory costs	5,930	1.483 "
4. Shipping costs	12,308	3.077 "
5. Sale charges, etc.....	5,760	1.440 "
6. Bonuses, etc.	3,840	.960 "

Total expen. of 1,000-acre estate. \$103,378

Cost per pound on 400,000 lbs.... 25.845 cents

By the above singularly lucid arrangement the estimated cost at any stage may be ascertained. The first three stages, up to the point of shipment, represent 20.368 cents, while the three later stages represent 5.477 cents. It will be noticed that nearly one-half of the total cost is incurred before tapping, or, in other words, in seconding and facilitating the work of nature. While this estimate is supposed to include all outlays from period of planting and weeding up to and including the time of auction in Europe, it does not cover anything for interest on capital employed. Assuming that interest of four to five years has to be covered on a large share of the first item, it is a question whether the current estimate of "eighteen pence a pound" for plantation cost is materially affected by Mr. Malet's figures. Of course they,

in common with all pro forma estimates, have to stand comparison with actual recorded facts. They are based, it will be remembered, on the supposed case of a 1,000-acre estate yielding annually 400 pounds per acre, but are susceptible of comparison with actual results.

The following summary tables deal with the separate items of cost, as shown by Mr. Malet's estimate:

Item 1, General Expenditure.....		
Rent, 1,000 acres at \$2.272.....	\$2,272	
Hospital staff and up-keep.....	2,579	
Visiting medical officer.....	682	
Assessment for roads, etc.....	284	
Planters' Association	114	
Up-keep of buildings, furniture, etc.....	852	
Agency and visiting agent.....	3,408	
		\$10,191
English expenses of direction, etc.....	5,680	
Estate management and clerical staff.....	17,609	
		23,289
Field up-keep force (28c. per man per day)...	8,180	
Headmen for do.....	409	
Carters and gardeners (10), at (28c. per day)	909	
Up-keep of cattle and motor car.....	568	
Up-keep of estate, tools, etc.....	1,136	
Recounting of labor, etc.....	1,136	12,338
Contingencies	3,022	3,022
Total Item 1.....		\$48,840
Item 2, Tapping Expenditure.....		
Wages of tapping coolies.....	\$25,500	
Wages of 10 headmen at 40 cents per day.....	1,200	
		\$26,700
Item 3, Factory Costs.....		
Wages	\$2,226	
Acid	110	
Fuel	654	
Repairs and lubrication.....	1,140	
Cases (3,000) at 60 cents.....	1,800	
		\$5,930
Item 4, Shipping Costs on 3,000 cases.....		
Transit to vessel.....	\$ 638	
Freight to Europe.....	3,750	
Wharfage and delivery, 72 cents per case....	2,160	
Insurance	960	
Export duty 2½% ad. valorem (on \$192,000)...	4,800	
		\$12,308
Item 5, Sale Charges.....		
1% on \$192,000.....	\$1,920	
Brokerages and agency charges, 2%.....	3,840	
		\$5,760
Item 6, Bonus to agents and estate staff.....		
2½% on \$192,000.....	\$3,840	
		\$3,840

REDUCTION OF PLANTATION COSTS.

In discussing the above subject, "Grenier's Rubber News" remarks that while the policy in estates under honest management is to reduce the cost of production to the minimum, that figure will of necessity vary. The cost of production will in some parts of Malaya be found much higher than in others.

Ceylon, it is remarked, has an advantage over Malaya in the average cost per day of a cooly being 6 pence as compared with 10½ pence; the inducements afforded by the higher Malayan wages resulting in the Indian immigrants finding superior attractions in the latter country, which thus secures the labor.

THE FUTURE OF RUBBER PRICES.

A LONDON correspondent of the "Gummi-Zeitung" in dealing recently with the above subject, remarks that the English rubber market, since the beginning of 1912, has displayed unusual steadiness, coupled with a moderate amount of business. He adds that plantation sorts (the production of which for the current year is estimated at 22,000 tons) are at a high-water mark, which has been fluctuating within narrow limits above 5 shillings (\$1.2163), or about 8 pence (16.21 cents) higher than the best wild rubber, a visible proof being thus afforded of the preference of consumers for plantation rubber. The quantity of this class (by no means small) offered at the last London auctions all met with buyers at full prices.

Such, it is remarked, is the tenor of broker's reports, and of the plantation companies to their shareholders.

"But," the writer asks, "what have we to expect for the immediate future? A definite fall in prices, or a decided advance? A new rise or a drop? As high as 5s. 4d. has been paid on several occasions for light plantation crepe. And in spite of all this, the selling prices of automobile and bicycle tires have been considerably reduced by the best makers. How can these facts be reconciled?"

"If we inquire, in Mincing Lane, the reason of the steady high level of prices, we are told: 'It's the persistent inquiries from the consumers.' So it is consumption that is itself keeping up the market? And yet it is known that at present only the most urgent requirements are being covered. Prices are too high—much too high, and consumers would prefer to buy nothing, were they not obliged to do so."

"The supply in all kinds of rubber is important, and has increased in far greater proportion than the growth of the rubber goods industry. Thus it is only to a very limited extent that consumption has to bear the blame of the present high price of the raw material."

With regard to the present attitude of speculators, the following interesting suggestion is put forward:

"From the steadiness of the market, we might be tempted to believe that speculation, which previously was so successful in its manipulations, was asleep or had withdrawn. Such is, however, a vain hope. The probability is rather that those interested in a rise or a fall are acting on about the same principle and are now balancing each other, but that both factors, on account of the risk and in the present difficult monetary situation, are deterred from risking a *coup* in one or the other direction. The time is, however, approaching when the one factor *must* give way to the other, and there is every prospect that in this measuring of forces, those wanting a rise will be vanquished. The rubber manufacturing industry, which is capable of exercising a greater influence upon the crude rubber market than it has hitherto done, should not be satisfied until the price for Pará is brought below 4 shillings a pound. For the speculative element is not idle."

Looking at the matter from another point of view, it is asked, if in previous years, the crude rubber trade was doing very well when wild rubber of South American and African origin was selling far below present prices, why could it not do the same today. It is added:

"The complaints as to the alleged increasing difficulty of obtaining rubber from distant forests cannot be substantiated. In the Amazon territory and the Congo, improved road and rail construction, removal of duties and other administrative measures, have afforded support to the rubber growing industry, in view of the growing competition from plantation rubber. On the other hand, it is admitted that Eastern plantations would pay handsomely at a price of 2s. to 2s. 6d. for their product. According to their own declaration, a pound

of pure rubber only costs the sound plantation companies about 1s. 6d. The profits of plantation cultivation on this scale, upon the above yearly quantity of 22,000 tons, runs into the hundred millions of marks."

Finally, the attention of the rubber industry is called to the fact that the stock of rubber at points of export and import (apart from the quantity afloat), is, in the writer's views, enormous. Reference is made to receipts at Pará from the interior, of 4,000 tons up to February 24. There were, at time of writing, over 1,000 tons of plantation rubber in London for the approaching auctions, while 500 tons of Congo and other rubber were listed for the next Antwerp sales. Behind these quantities is the Brazilian stock which has not yet come upon the market.

The writer brings up the point that the "bullish" reports of rubber brokers and plantation companies make it appear as if the manufacturing industry could use all these quantities through its unlimited capacity of absorption. In fact, as it is remarked, the industry is made to look as extensible as the raw material it handles; the chief object of the companies being to keep up the profit of their operations, while manufacturers may be satisfied with their industrial gains for working the rubber.

It is urged in conclusion, that this view is based on a mistake; perhaps an intentional one. The writer adds:

"The purchasing power of the public, and thus of the rubber manufacturing industry is limited. The times are not bright. Before the automobile becomes generally used by householders, before the bicycle and rubber shoes are adopted by poor people, before there is a noiseless London through rubber paving—prices of raw material must have been considerably reduced."

"Therefore the rubber trade, and particularly the rubber goods manufacturing industry, can themselves help, by skilful buying and cautious operations, to bring down the prices of this product, so indispensable to the industry of the present day. All prospects would seem, from above explanations, to favor this course."

TECHNICAL USES OF "MANIHOT" AND "KICKXIA."

AMONG questions now engaging the attention of rubber scientists is the connection between the preparation and application of different varieties.

In an interesting booklet, Dr. Frank has reproduced his paper, read at the recent London Rubber Exhibition, in which the whole subject of the cultivation and technical uses of plantation rubber is dealt with in such a manner as to bring the salient points involved clearly before the reader. While professedly referring specially to *Kickxia* (*Funtumia*) and *Manihot*, the general features outlined serve as landmarks for the consideration of the rubber question, and lead up to the subject of standardization of rubber treated, by Dr. Frank's colleague, Dr. Eduard Marckwald, in his booklet referred to in the March issue of THE INDIA RUBBER WORLD (p. 269).

Dr. Frank pertinently remarks, in continuation of his previous utterances, that it is desirable to bring about uniformity in the methods of preparing rubber on the plantations, in order to pave the way for a standardization of plantation rubbers, which would greatly increase their usefulness. The suitability of plantation rubber, it is remarked, is dependent firstly, on climatic and soil conditions, and secondly, on the manner in which it is prepared. The species of tree, though influencing the value of the rubber, is only of secondary importance.

Dealing with this last branch of the subject, Dr. Frank states that *Hevea* rubber, if carefully prepared will always be regarded as the most suitable general product, while *Kickxia* rubber has not been considered to possess the same technical value. The

characteristics of *Manihot* rubber, at first not sufficiently comprehended, are now more fully understood, that variety being regarded as just the material for articles to be subjected to pressure and friction.

The joint investigations of Dr. Marckwald and Dr. Frank have led to the discovery of the fact that the mode of preparation was of far greater importance than had been at first supposed. Certain acids or plant products act in such a manner during the coagulation of *Manihot* rubber, as to make it firmer. Among the various coagulants tried, none seem to have given so good a rubber as the juice of the wild lemon. In addition to articles to be subjected to pressure and friction, it is claimed that "patent rubber" goods can be advantageously produced from *Manihot* rubber. At the same time, *Manihot* should not be strongly worked mechanically in the Tropics, the goods made from it being thereby proportionately depreciated in value.

If a robust rubber like *Manihot* is so strongly modified by variations in the coagulant and the mode of preparation, how much more true is this of the sensitive *Funtumia*, which it has taken years to get accepted in the cultivated form? Today, when chemical and physical methods are available for determining the value of raw rubber, the proof is furnished that rubber goods can be made from *Kickxia*, which are not only elastic but "nervy" as well. Such a result is, however, only obtained by employing methods adapted to the local circumstances.

Among the various detailed points emphasized by Dr. Frank are those of plantation costs, artificial fertilizers, preparation on the plantations, preliminary working, shipping and storage. In conclusion he remarks that what has been said of *Manihot* and *Kickxia* also applies to *Hevea*, *Castilloa* and *Ficus*, it being of importance that the special conditions of the particular plantation should be taken into account at the start as well as at every stage of production and preparation. To use his own words: "By systematic work, it would be possible to find for every plantation a method of preparation which would meet its special conditions, in such a manner that perfectly first-class grades fully equal to wild rubbers, would be produced."

Such are a few of the leading points in Dr. Frank's valuable paper, which merits careful perusal by those interested in the subjects treated.

RUBBER PRODUCTION OF THE GERMAN COLONIAL POSSESSIONS.

ACCORDING to the official report on the German Colonial Possessions for the year ending with April, 1911, the period under review had been in general favorable to their development. This was largely due to the construction of new railways, while scarcity of labor proved a difficulty at various points, especially in the more closely planted districts of East Africa.

In view of a recent noticeable reduction in the interest previously taken by German and English capitalists in German colonial investments, the Imperial and colonial administrations have been jointly investigating how the abuses which have occurred in connection with certain new incorporations could be prevented in the future.

Under the influence of the high prices current in the earlier part of the official year 1910-11, German colonial rubber exports display a marked increase in comparison with those of the preceding annual period, as will be seen by the following figures:

RUBBER EXPORTS FOR YEARS ENDING APRIL, 1910 AND 1911.

	1910.	1911.
Kamerun	1,517.635	1,961.756
German East Africa.....	474.348	743.706
Togo	136.785	134.919
German New Guinea.....	6.616	8.649
Total from German possessions. tons	2,135.384	2,849.030

KAMERUN.

Kamerun took first place, nearly the entire quantity from that source in 1911 going to Germany, 1,747,540 tons; England taking 195,900 tons, and other countries the balance, 18,320 tons.

Rubber formed in value more than one-half of the 43½ million dollars' aggregate of Kamerun exports for the year 1910-1911. The total number of rubber trees in Kamerun at the end of April, 1911, was 5,744,248, divided as follows:

<i>Kickxia</i>	4,915,865
<i>Hevea</i>	786,270
<i>Manihot</i>	19,343
<i>Ficus</i>	16,686
<i>Castilloa</i>	2,584
Sundry varieties.....	3,500
Total	5,744,248

It is stated, however, that the yields from *Kickxia* have not been encouraging, and that while its cultivation has been materially reduced as compared with former years, that of *Hevea* has recently made great progress, planters finding advantage in such a course. *Hevea Brasiliensis* gives a larger yield, is less exacting than *Kickxia* as to soil, and is very suitable for intermediate planting with cocoa, this combined plan of cultivation now being more or less generally carried out. Owing to the necessary quantity of Kamerun seed not being available until 1912-1913, most of the young plants have at present to be imported from India. When this necessity no longer exists, a considerable extension of Kamerun planting is anticipated.

GERMAN EAST AFRICA.

The following results are shown for the year 1910-1911:

	Exports to Germany.	Exports to other countries.	Total.
Plantation rubber . tons	359.85	54.04	413.89
Wild rubber	268.37	61.45	329.82
Total	628.22	115.49	743.71

In rubber cultivation *Cara* seems to have assumed the first place, hitherto occupied by *Manihot*.

A purifying establishment for crude rubber is being operated at Muheja and is said to be well occupied, while another is being installed at Tanga. In many cases the crude product is rolled and at the same time washed on the plantations.

TOGO.

The whole of the exports of rubber went to Germany and were about the same in quantity as during the preceding year.

GERMAN NEW GUINEA.

The surface under cultivation with rubber in New Guinea in April, 1911, was 6,040 acres, distributed as follows among different varieties:

<i>Ficus</i>	4,237
<i>Hevea</i>	1,150
<i>Castilloa</i>	640
<i>Manihot</i> , etc.....	13
Total	6,040

While these figures only deal with the year ending April 30, 1911, they are indicative of the present tendency of rubber cultivation in the German colonial possessions.

PREPARING FOR PANAMA.

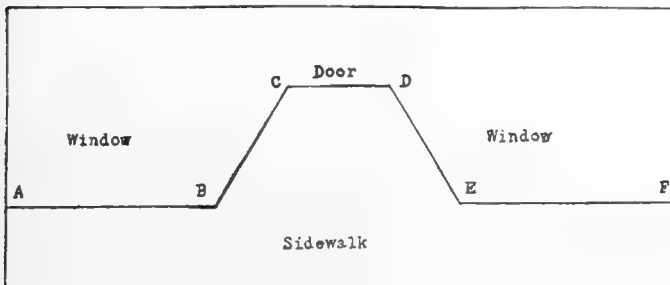
With the object of preparing for the augmented financial requirements involved in the expected Panama Canal traffic, the Hamburg-American Steamship Co. has increased its capital by \$6,250,000, bringing it up to \$37,500,000.

Window Displays for the Rubber Goods Dealer.

By a Practical Window Trimmer.

THE retail dealer in any line finds, before many seasons have passed, that his window is his best salesman. If he is wide awake he will see that 50 per cent. or more of his business is the result of an attractive window display. Tempting the public to come in sells more goods than a silver-tongued orator behind the counter, no matter what the line is. Of course, the rubber line is not an exception to this.

The window trimmer for a rubber concern finds more difficulty in plying his art than a window trimmer in some other lines. Ladies' suits, furniture and similar lines lend themselves



to artistic window arrangement on account of their size, but with rubber goods it is different, since in that line many of the articles are so small. Being small they do not lend themselves to an artistic arrangement as easily as do larger articles. In decorating a window with small articles it is very easy to arrive at a finished product which is far from being a selling feature; to get, in fact, a slipshod, thrown-together look that is far from attractive.

In trimming a window the first point to be considered is:

From what points is the window viewed? Generally speaking, there are two types of display windows—one is the straight front window, and the other is the corner window—with corners of varying angles. Most of these corner windows are formed by the fact that store doors are set back some little distance from the walk; that gives the window arrangement shown in the accompanying figure. In the straight front window there is, of course, only one point of view—directly in front—and the window has to be dressed with reference to that viewpoint. But in the corner window it is necessary to arrange the display so that it will be sightly from either side. Referring to the figure used for illustration, the display must be arranged so as to be viewed from the sidewalk lines A B and E F and also from the entrance lines B C and D E.

In brief, the only point to be remembered is to have your display face the points from which it is viewed. If you do this you cannot help arriving at a pleasing and effective arrangement of goods.

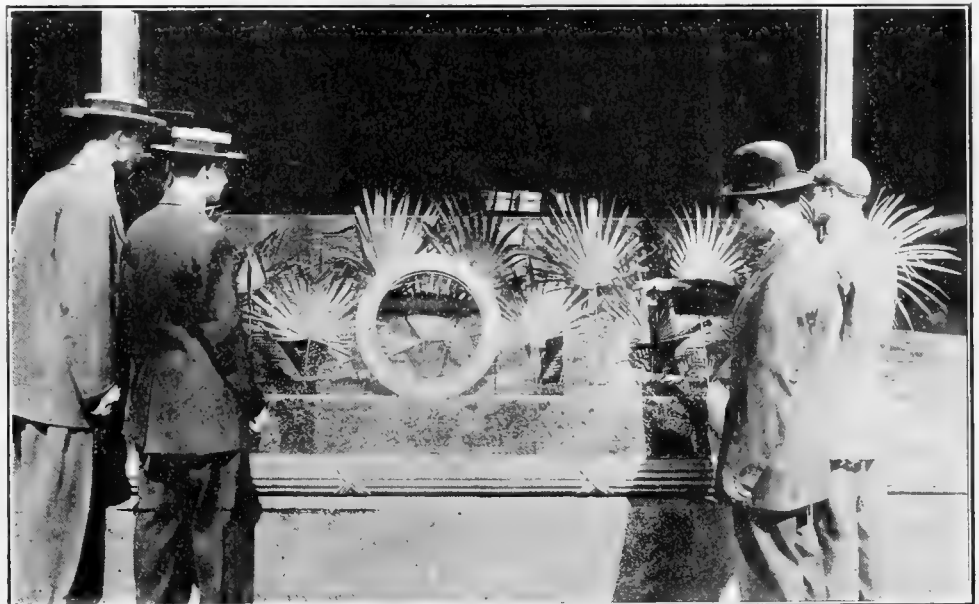
A window display should be built up and not thrown in. The first thing to do is to select some article rather large, or a collection of similar smaller articles, which can be used as a foundation, so to speak. Around this foundation or central object the rest of the display should

be arranged in an artistic and balanced manner. For the central object one large article or a group of large articles can be used or you can use a collection of small articles (all alike), arranging them in a symmetrical style. After having obtained a central object, or idea, other articles should be grouped around this in a balanced manner. It is not necessary that the same article should be placed on both sides, but it would be a poor balance to put a large auto tire, for instance, on one side and a small water bottle on the other side in the corresponding position. In building up a window display it is well to have the central part higher than the rest, with the lowest part of the display at the ends. This gives a finished and graceful look to a window.

Another point to remember is this: Don't put, or even try to put, everything in the window at the same time. Don't think for a moment that if water bags are not shown in the window every time it is trimmed that people will conclude you don't carry them. Many window displays are ruined by the desire of the trimmer to show everything in one window. Large stores, having many windows, seldom do this, but the small store with one or two small windows often tries to show everything—with unhappy results. Better trim the window oftener and thereby avoid this mistake.

While on this point of what to put in the window, it might be well to say that very good results are obtained by having a strong display of only one article in a window. For instance, a window filled with nothing but water bags is bound to be a selling force because it puts all its energy in displaying one article. No matter how well the bags were displayed in conjunction with other goods they could not show off to as good advantage as if displayed alone. This, of course, is true right through the line from the smallest article to the largest.

A concentrated display of one article not only booms the sale of that particular article but also promotes the sales of similar



WINDOW DISPLAY OF SELF-MOVING TIRE.

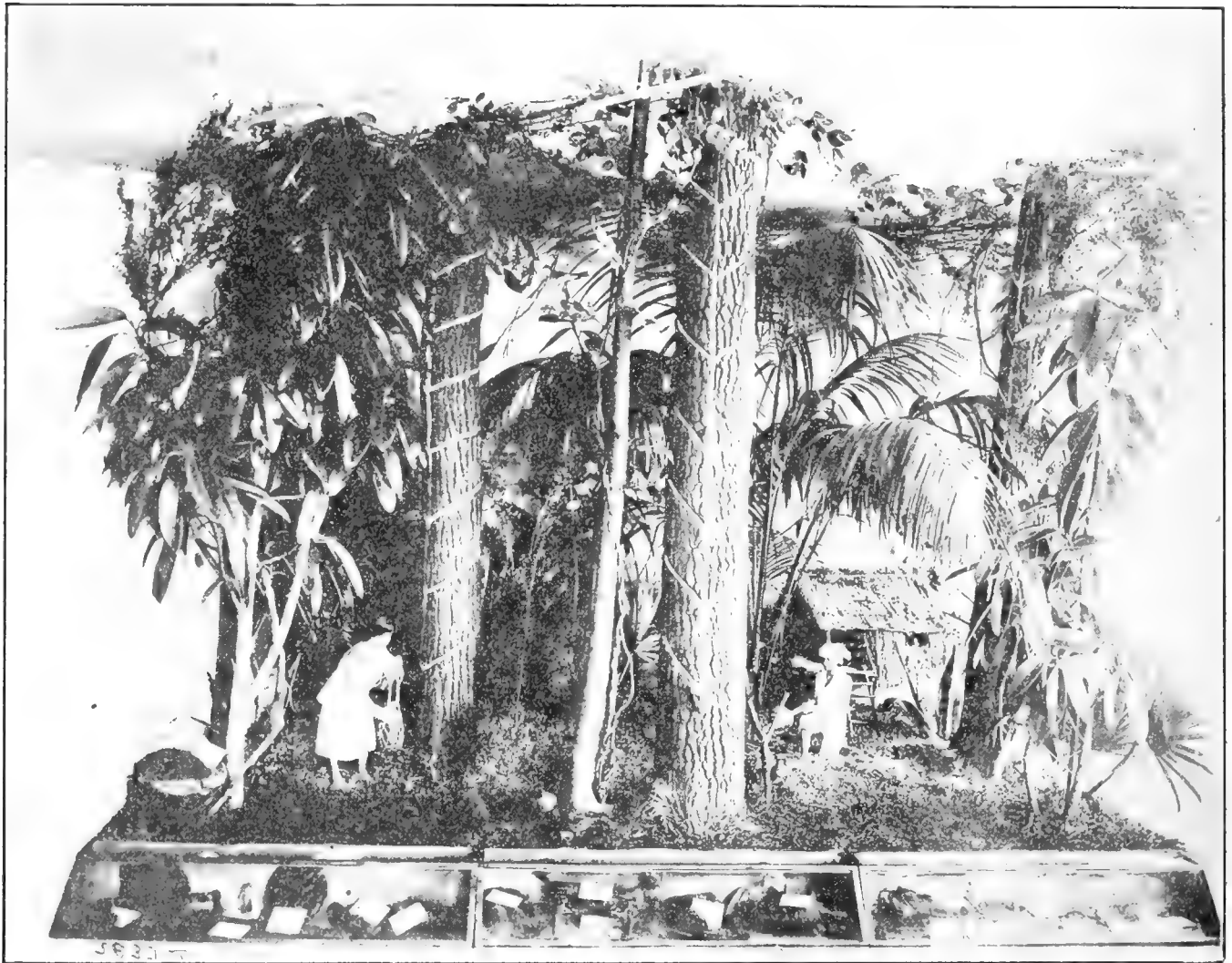
articles. For instance, a display of water bags will, of course, sell water bags, but more than that it will cause your sales of other articles used in a sick room, to increase. I know of a case where a window was given over to the display of a certain

make of safety razors. Of course, the sale of those razors began to increase but more than that the sale of other makes of razors began to slump, and, in fact, all razor and shaving accessories took a big start. In that case it paid to specialize in window displays. What is true of razors is equally true of rubber articles, or, in fact, of any line.

There is one exceedingly important point that must always be kept in mind—that above all things the window must be kept sightly. If possible, it should be trimmed frequently, the successive displays showing a strong contrast. But whether trimmed frequently, or not, it should never be allowed to look "mussed up" and particularly it must never be allowed to look dirty. It is of little avail to have cleanliness and order within

for new articles all the time. But don't stop there. Feature them in your window and let people see them, so as to reap the full reward of your enterprise.

Another point that will give a store a progressive air is seasonableness. Make a feature display of rubber articles useful on a vacation and just as soon as people begin to think of going away, or better still, just a little before they think of their vacations remind them of these articles by an attractive window. As soon as Thanksgiving is over put in a display of articles suitable for Christmas gifts. For the Fourth of July have a display of rubber bandages, fingers and such things. Timeliness is the greatest of salesmen. Always try to anticipate the other fellow, however, and have your special display doing duty while



REPRODUCING A RUBBER FOREST.

the store if they are not reflected in the window. On a busy city street a thousand people see the window where one looks inside the store; so the store window should always be kept at its best.

A retail dealer, in any line, finds that new articles give a big "boom" to his business in many ways. They draw attention, start people talking, and finally lead to increased business. Always be on the lookout for new articles. If you can get something that your rival hasn't got yet, get it. Make a feature display of it and watch results. To be sure you can hardly expect to enjoy the monopoly very long but you were the first one, and that's what counts. The dealer who gets ahead in the rubber business or in any business is the one who is on the lookout

he is still thinking it out. Being first is half the battle in any form of advertising. Watch your own window, watch your rival's window; make a study of each, and see if you can't make a better looking display than anyone else in your line.

The two window displays which are reproduced by way of illustrating this article were used by The B. F. Goodrich Co. and were shown in the windows of its branches all over the country and attracted a vast deal of attention; in fact, there was invariably a crowd before each window. One shows a rubber gathering scene in South America and reproduces as nearly as possible the actual picture. It is very realistic and most effective. At the bottom it will be noticed there are several cases containing interesting rubber curios.

The other window display, while considerably simpler, attracted possibly just as much attention because of an exceedingly unique feature. The tire shown in the center is on a track and travels back and forth without any visible motive power and evidently of its own volition. Pretty good tires are now being made in this country but none as yet have been produced that are capable of automatic movement, so there doubtless is some hidden mechanism that runs the tire; but what it is is not observable to the man on the walk.

These displays, of course, are more elaborate than most dealers are equipped to produce, but they show what can be done in this most effective form of advertising.

GERMAN EASTER WINDOW DECORATIONS.

With the appreciation of detail, which constitutes a feature of the German character, attention has been drawn in that country to the opportunities afforded by the Easter season for the display of rubber goods retailers.

To the rubber goods dealer Easter represents the period when sales of spring and summer requisites once more assume importance, particularly garden hose and articles connected with outdoor sports. One of the best ways to bring such goods before the notice of the public is by means of a well-arranged Easter show window, attractive to the passer-by.

In connection with this idea, a suggestion has been made to cover the flooring, ceiling and walls of the showcase with green cardboard or other suitable material. A further suggestion is made of constructing a semi-oviform figure out of eight converging conical strips of cardboard, of such a size as more or less to occupy the upper part of the showcase. This figure is then encircled with garden hose, secured by wire fastenings.

Attached to the hose would be a varied assortment of sporting articles, such as tennis-shoes, rackets, attractively fastened with ribbons, etc.; while celluloid toilet articles and other goods of attractive character, such as rain coats, etc., can also be displayed to advantage, being arranged with a certain degree of freedom.

AN INTERESTING FIRESTONE EXHIBIT.

AMONG the many features of special interest to visitors at the New York auto shows held in January, was the non-skid tire of the Firestone Tire and Rubber Co. This tire has a unique heavy raised lettered tread of tough rubber, making it nearly double the thickness of an ordinary smooth tread casing. The peculiar arrangement of this lettering presents many sharp edges and angles to the road and the hollows of the letters create vacuums against the paving, combining two well-known principles of skid prevention. This tire, as are all other Firestones with the exception of the regular clincher pattern, is furnished with a floating flap.



FIRESTONE NON-SKID TIRE.

Not content with meeting competition at home, the Firestone company has gone to Europe to invade the markets there with its new European type of tire. This new addition consists of a tough resilient rubber tread moulded on to a hard rubber base and shod with steel. It is somewhat similar in appearance to the tires used abroad, but has the advantage of several improvements and a fine quality of rubber.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

RUBBER HOSE TO PROTECT PETROLEUM.

THERE is an active market east and west for high-grade india-rubber fire hose for use at the fire stations maintained by producers and refiners of petroleum. The Standard Oil plant at Bayonne, New Jersey, is a notable instance of an installation of the very best procurable india-rubber hose for protecting batteries of steel tanks filled with petroleum. These works are connected with pipe lines as far away as Oklahoma, making a pipeway 1,500 miles long from the wells to the tanks at Bayonne, New Jersey, and Hunter's Point, New York. This fire hose is not served with water, but with steam at the enormous pressure of 180 pounds per square inch, being a much higher pressure than exists in most of the steam engines of the world. When a fire reaches a tank of crude petroleum, the forcing of water thereupon is of no service whatever. In several great fires at the oil works at Bayonne, the work of the city fire department, though ably planned and bravely conducted, was of no value whatever, the fire going from tank to tank and building to building until property to the value of more than two million dollars, on several occasions, was destroyed.

Within twenty years, petroleum worth \$375,000,000 has been destroyed by fires where vast tonnages of water were thrown on without quenching one of the fires. Most of the fires at the great storage tanks of crude or refined petroleum are due to lightning. Nearly all the fires at petroleum plants in the North Atlantic States since 1870 resulted from lightning strokes. At a petroleum storage plant it is the first ten minutes of a fire which determines whether it will be a small or big one. This fact makes it necessary for the fire department of the plant to be ready day and night to overpower the conflagration with many streams of live steam of at least 180 pounds pressure per square inch. At Bayonne 48 separate lines of india-rubber hose are constantly coupled to the steam mains. The mechanical engineers for the producers and refiners of 210,000,000 barrels of petroleum a year inform THE INDIA RUBBER WORLD that the fire departments of the works which they are in charge of use, in the aggregate, 578 miles of the highest procurable grade of india-rubber hose. In all cases the specifications for the fire hose are drawn with rigid particularity by the mechanical engineering staffs of the petroleum producers and refiners.

India-rubber hose for fire department uses in the petroleum industry is in increasing demand, because of the fact that the principle of conservation in tanks is being rapidly developed, where until lately much of the oil from the wells was allowed to seep into the ground. In this way California has lost many millions of dollars' worth of good grade petroleum that after coming from the wells was for the lack of storage tanks wasted in seepage. Last year a well in southern California, which, when newly drilled, flowed 40,000 barrels a day, ran up to 90,000 barrels a day three months afterward; when over 600,000 barrels were lost because of lack of storage tanks. Since then in that zone tanks and fire department stations have been built and india-rubber hose, aggregating 125 miles in length has been bought for these plants.

The belief was once general that the underground supply of petroleum in this country was inexhaustible. But since four once highly productive fields have become wholly exhausted and others are rapidly decreasing in production, the principal producers realize that all oil brought to the surface that is not immediately required for the markets must be stored. It is this storage movement that is giving so much occupation to makers of good grade india-rubber hose. California is now leading in the production of petroleum as classified by States—producing a third of the national output, and in California the storage capacity is small as compared with that in the mid-continent zone of petroleum production. Hence, the remarkable activity in the sales of india-rubber hose to California petroleum producers.

Tariff on Materials Used in Rubber Manufacture.

Under the system now being followed, of taking up the tariff schedule by schedule, such analogous items as come under other schedules than those immediately under discussion, are necessarily left over for treatment in their turn under their proper heads. Hence in the subjoined extract dealing primarily with schedules A (chemicals) and C (metals), some articles are referred to which belong to Schedules B and G, which sections have not yet been taken up. These references also include certain free items which are appropriately considered with the dutiable schedules named.

It is to be regretted that the plan of the present tariff places the free list by itself at the end of the dutiable schedules, instead of letting it be divided under its appropriate heads, as has been done in the new chemical schedule.

In the statistical table published in the INDIA RUBBER WORLD of July 1, 1911 (p. 380), the quantities and rates of duty under both the Dingley and Payne Tariffs are shown, while the annexed table deals with the present and proposed duties.

Schedules A (chemicals) and C (metals) at time of writing had passed the House of Representatives and were in the hands of the Senate. The rates and equivalents quoted are therefore subject to change in committee, in debate or in conference; only so far affording a general idea of the tendency of the present tariff proposals.

Where goods now free are made dutiable the prospective imports are assumed to be on the same basis as the latest available returns.

The so-called "basket clause" including chemicals not otherwise specified and which forms in the present tariff paragraph 3 at 25 per cent. appears in the proposed measure as paragraph 5 at 15 per cent. This clause should thus affect new chemicals, though under the "similitude" theory they might be claimed by the customs officials to be covered by one or other of the specified paragraphs.

PROPOSED CHANGES IN DUTIES ON PRINCIPAL MATERIALS USED IN RUBBER MANUFACTURE.

	Present Duties.	Ad Valorem Equivalent.	Proposed Duties.	Ad Valorem Equivalent.	Minimum Duty.
ACETONE	25%	25%	1c. lb.	.....	.....
ACIDS.					
Carbolic	Free	Free	Free	Free	.....
Hydrochloric or Muriatic	Free	Free	Free	Free	.....
Sulphuric	1½c. lb.	8.63%	Free	Free	.....
AMMONIA.					
Carbonate	1½c. lb.	27.73%	¾c. lb.	13.86%	.....
ASBESTOS.					
Unmanufactured	Free	Free	(Schedule B)	Not taken up	.....
ANTIMONY.					
Crude Ore, etc.	{ 1c. lb. on antimony contents }	28.90%	{ 10% on antimony contents }	10%	.....
Oxide	1c. lb. and 25%	57.38%	25%	25%	.....
ASPHALTUM OR BITUMEN.					
Crude	\$1.50 ton	35.28%	(Schedule B)	Not taken up	.....
Dried or advanced	\$3 ton	29.63%	(Schedule B)	Not taken up	.....
BURGUNDY PITCH	Free	Free	(Schedule B)	Not taken up	.....
CHALK.					
Unmanufactured	Free	Free	Free	Free	.....
Ground, precipitated, etc.	1c. lb.	39.37%	{ Ground, 10% Precipitated, 25% }	{ 10% 25% }	.....
BALSAMS.					
Canada	Free	Free	} Crude, 10% Advanced, 15%	10% 15%	.....
Storax	Free	Free			.....
Tolu	Free	Free			.....
CADMIUM	Free	Free	No change	Free	.....
CHLORIDE OF CALCIUM	25%	25%	Free	Free	.....
COAL TAR.					
Crude and pitch of.	Free	Free	Free	Free	.....
Benzol, etc.	Free	Free	5%	5%	.....
EMERY AND CORUNDUM.					
Emery Ore	Free	Free	(Schedule N)	Not taken up	.....
Corundum, abrasive	Free	Free	(Schedule N)	Not taken up	.....
Crude, artificial abrasives	10%	10%	(Schedule N)	Not taken up	.....
Grains and ground—					
Corundum	1c. lb.	16.98%	(Schedule N)	Not taken up	.....
Emery	1c. lb.	22.56%	(Schedule N)	Not taken up	.....
FULLERS' EARTH.					
Unwrought and unmanufactured	\$1.50 ton	19.32%	(Schedule B)	Not taken up	.....
Wrought and manufactured	\$3.00 ton	32.65%	(Schedule B)	Not taken up	.....
GLYCERINE.					
Crude	1c. lb.	11.29%	1c. lb.	11.29%	.....
Refined	3c. lb.	10.63%	2c. lb.	7.10%	.....

	Present Duties.	Ad Valorem Equivalent.	Proposed Duties.	Ad Valorem Equivalent.	Minimum Duty.
GUMS.					
Copal	Free	Free	½c. lb.	About 8%	.....
Kauri and Damar.....	Free	Free	1c. lb.	About 7%	.....
LANOLIN AND WOOL GREASE.					
Lanolin	25%	25%	(Schedule G)	Not taken up	.....
Wool Grease, Crude.....	¼c. lb.	14.53%	(Schedule G)	Not taken up	.....
Wool Grease, Refined.....	½c. lb.	15.15%	(Schedule G)	Not taken up	.....
MAGNESIA.					
Calcined	7c. lb.	43.27%	3½c. lb.	21.63%	.....
MICA.					
Unmanufactured or rough trimmed.....	5c. lb. and 20%	36.31%	(Schedule B)	Not taken up	.....
OILS.					
Castor	35c. gallon	34.94%	20c. gallon	20.00%	.....
Cotton Seed	Free	Free	Free	Free	.....
Linseed	15c. gallon	27.11%	13c. gallon	23.00%	.....
Palm	Free	Free	¼c. lb.	About 4%	.....
Rapeseed	10c. gallon	23.05%	10c. gallon	23.05%	.....
PAINTS AND COLORS.					
BARYTA.					
Sulphate of, or Barytes.					
Unmanufactured	\$1.50 ton	59.11%	15%	15%	40c. ton
Manufactured	\$5.25 ton	52.11%	20%	20%	\$1.30 ton
BLACK.					
Made from bone, ivory or vegetable substances	25%	25%	15%	15%	.....
BLUES.					
Prussian, etc.	8c. lb.	44.23%	20%	20%	3c. lb.
Ultramarine	3c. lb.	32.22%	20%	20%	2c. lb.
Cobalt and ore	Free	Free	Free	Free	.....
Oxide of cobalt.....	25c. lb.	24.14%	10c. lb.	9.50%	.....
GREEN.					
Chrome green	4½c. lb.	25.98%	20%	20%	3c. lb.
LEAD.					
Litharge	2½c. lb.	53.32%	25%	25%	1c. lb.
RED.					
Vermilion Reds.					
Containing quicksilver	10c. lb.	17.53%	15%	15%	7½c. lb.
Without quicksilver	47½c. lb.	29.41%	25%	25%	4c. lb.
Venetian Red	30%	30%	(Crude) 10%	10%	.....
WHITING, ETC.					
Whiting and Paris White, dry.....	¼c. lb.	43.98%	1/10c. lb.	17.50%	.....
ZINC.					
Oxide, dry	1c. lb.	17.47%	15%	15.00%	.....
White Sulfid or Sulphide.....	1¼c. lb.	41.85%	15%	15.00%	6/10c. lb.
PLUMBAGO	Free	Free	(Schedule B)	Not taken up	.....
POTASH.					
Bichromate	2¼c. lb.	45.86%	1c. lb.	20.00%	.....
Caustic—					
Not refined	Free	Free	6/10c. lb.	About 15%	.....
Refined	1c. lb.	12.75%	1c. lb.	12.75%	.....
PUMICE STONE.					
Unmanufactured, valued \$15 or less per ton..	30%	30%	(Schedule B)	Not taken up	.....
Unmanufactured, valued over \$15 per ton....	\$5 ton	7.70%	(Schedule B)	Not taken up	.....
Wholly or partly manufactured.....	¾c. lb.	67.57%	(Schedule B)	Not taken up	.....
ROTTEN STONE	Free	Free	(Schedule B)	Not taken up	.....
SODA.					
Caustic	½c. lb.	15.39%	¾c. lb.	7.69%	.....
SULPHUR.					
Sublimed or flowers.....	\$4 ton	13.73%	In any form, Free	Free	.....
TALC.					
Ground, powdered or prepared.....	35%	35%	15%	15%	.....
TURPENTINE.					
Venice	Free	Free	(Schedule B)	Not taken up	.....
WAX.					
Mineral	Free	Free	(Schedule B)	Not taken up	.....
Vegetable	Free	Free	(Schedule B)	Not taken up	.....

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

ON March 16 the Board of Directors of the B. F. Goodrich Co. sent a notice to each of their stockholders calling a special meeting of the stockholders to be held March 27, 1912, which notice was as follows:

To the Stockholders of The B. F. Goodrich Co.

Notice is hereby given that a special meeting of the stockholders of The B. F. Goodrich Co. will be held at the office of the Company in Akron, Ohio, on Wednesday, March 27, 1912, at eleven o'clock a. m.

Said meeting is called for the purpose of considering and determining whether to adopt a certain agreement authorized by the Board of Directors of said company, at a meeting thereof held March 16, 1912, subject to the adoption thereof by the stockholders at the meeting thereof hereby called, providing for the sale and transfer, to a new corporation to be organized under the laws of the State of New York, or of such other State as counsel for this company may agree to, of the entire property, assets, business and good-will of said The B. F. Goodrich Co., as of April 1, 1912 (except only certain sums in said agreement provided to be retained by this company), subject to all the liabilities of said The B. F. Goodrich Co. as of April 1, 1912, which are to be assumed by the purchasing company; said new corporation to have an authorized capital stock of \$45,000,000, divided into 450,000 shares of the par value of \$100 each, of which 150,000 shares, of the aggregate par value of \$15,000,000, will be seven per cent. cumulative preferred stock with dividends cumulative from April 1, 1912, and 300,000 shares, of the aggregate par value of \$30,000,000, will be common stock, at least three per cent. of the preferred stock to be retired in each year after July 1, 1913, from the net surplus profits of the new company before dividends may be paid on the common stock. Said agreement provides for the sale to the bankers therein mentioned of 78,000 shares of said new preferred stock and 30,000 shares of said new common stock for the sum of \$7,800,000, together with an amount equal to the accrued dividends from April 1, 1912, on 78,000 shares of preferred stock; and said bankers further agree if required so to do by this company, to purchase all or such part of an additional 66,667 shares of said new common stock at \$67.50 per share, as this company may elect to sell as provided in said agreement. Said agreement also reserves to certain stockholders of this company the right to purchase from said bankers at par and accrued dividends, all of such part, as said stockholders may elect to purchase as provided in said agreement of 28,000 shares of such new preferred stock so sold to said bankers.

Said agreement further provides that none of the stock of the new company received by this company or its stockholders shall be sold, distributed or otherwise disposed of during six months from the time of delivery of stock to the bankers, except with the consent of the bankers. The charter of the new company will provide substantially that, until the holders of two-thirds in interest of each class of stock shall otherwise direct, the new company shall pay such amount of corporate, franchise and property taxes in the State of Ohio, as may be required by the laws of Ohio to render its stock exempt from taxes in Ohio. A copy of said agreement, to which is attached a copy of the proposed certificate of incorporation of new company, is on file and may be examined by the stockholders at the office of this company.

If the said agreement is adopted, 72,000 shares of the preferred stock of the new company, or the proceeds of all or such part thereof as may be sold to the bankers, as above stated, will be distributed pro rata among the holders of preferred stock of this company.

Whether you expect to be present or not, please sign and

return the enclosed proxy to the secretary in the enclosed envelope, in order to make certain that your stock will be represented. If you are personally present, however, your proxy will not be used.

By order of the Board of Directors.

B. G. WORK, President.

C. B. RAYMOND, Secretary.

The stock transfer books will remain closed until further order of the Board.

March 16, 1912.

This notice was accompanied by a communication from the directors as below:

AKRON, Ohio, March 16, 1912.

To the Stockholders of The B. F. Goodrich Co.

Referring to the notice this day sent you, calling a special meeting of stockholders of The B. F. Goodrich Co. to be held at the office of the company on March 27, 1912, the undersigned members of the Board of Directors desire to make the following statements:

1. We are all in favor of the execution and carrying out of said agreement and the plan therein set forth, and we intend at said meeting to vote in favor of the adoption of said agreement, and other large stockholders have expressed a like intention.

2. The moneys referred to in said notice as being retained by The B. F. Goodrich Co. are intended for the payment of the necessary expenses, and also the dividend on the present preferred stock for the quarter ending March 31, 1912, and dividend on the common stock.

3. The adoption of the agreement involves the distribution or payment to the holders of preferred stock of 1.2 shares of new preferred stock or \$120 per share in cash, at their option, and to the holders of common stock of substantially 2.7 shares of new common stock and \$78 in cash for each share of the present common stock.

4. The holders of a controlling interest in the present stock will become the holders of a controlling interest in the new stock, and the agreement also provides for the continuation of the business under the present management.

5. The proposed sale involves no commission or compensation of any kind to any of the officers or directors of the company and no officer or director of the company has any other than the same financial interest that every other stockholder has in said agreement and the sale therein provided for.

6. The three stockholders, parties to the agreement, have reserved, on behalf of all holders of the present common stock desiring to join therein, the right to purchase from the bankers, as stated in said notice, all or any part of 28,000 shares of the new preferred stock at the par value thereof and accrued dividends thereon from April 1, 1912.

7. The legality of the plan outlined in the agreement has been approved by counsel and said plan unanimously approved by the undersigned, being all the members of the Board of Directors except only C. C. Goodrich, who is abroad, but who has cabled his concurrence therein.

Upon the adoption of said agreement by the stockholders at their meeting on March 27, 1912, all the stockholders will be notified thereof, and proper forms will be sent them for the purpose of indicating their election as to sale or conversion of their preferred stock, and purchase of the 28,000 shares of new preferred stock and for covering their other rights reserved in said agreement.

B. G. WORK.	C. B. RAYMOND.	W. A. MEANS.
F. H. MASON.	H. E. RAYMOND.	E. C. SHAW.
	* * *	

Immediately upon the issue of these two notices a violent movement took place in the market quotations for the stock. The common stock, which had been selling at 257, went to 300 and then to 350. It then fell to 275 on the offering of large blocks

of stock. Later it rose to 280. The future price of this stock will be influenced by the price at which the new shares of stock are placed on the market.

The fluctuation in Goodrich stock had a slight effect on other stocks in the city. Diamond Rubber stock immediately rose to 315, but as soon as the flurry was over became steady at 298. 365 is bid for Goodyear stock, but there is none in sight lower than 377. Swinehart Tire and Rubber Co. stock jumped to 123 and is steady at 120. Miller Rubber Co. stock jumped from 140 to 162 and is now steady at 160. Firestone stock is strong at 225.

The reorganization plan as given in detail in the first circular reproduced above was carried at the meeting of stockholders, held on March 27, almost unanimously, 95 per cent. of the common stock, and 98 per cent. of the preferred stock being voted for its adoption.

* * *

John Gammeter, experimental engineer for The B. F. Goodrich Co., and Lester Weeks, the aviator, are opening up an aviation school at Akron. They have secured several aeroplanes and at present are practising on the grounds of the Country Club at Akron, Ohio. They expect to open a regular aviation field about April 1 at one of the lakes about Akron so that the hydroplanes as well as the aeroplanes can be used. The flying will be in charge of Mr. Weeks, who has been in the aviation game since its infancy and has become a very successful aeronaut.

* * *

The Swinehart Tire and Rubber Co. has opened up a new agency at 1013 S. Main street, Los Angeles, California, in charge of W. B. Guyton; another at 323 Seventeenth avenue, Denver, Colorado, in charge of Gessler Williams; another at 46 E. Walnut street, Columbus, Ohio, in charge of S. Neil Hallock. The former Chicago branch manager of this company, C. W. Harris, has resigned and R. L. Frewin takes his place. Three new salesmen have been added to the Chicago office, J. B. Benton, J. W. Hansen and R. A. Kerr, and the Akron sales force has also been increased by securing the services of John Allen and Harry Carnahan. J. D. Taggart, formerly with The Ajax Tire and Rubber Co., and G. M. Griffith are connected with the Philadelphia branch.

* * *

The Goodyear Tire and Rubber Co. have opened a second branch in Chicago to take care of the retail trade. The main branch remains at 177-179 Michigan avenue and the second is located at 2118 S. Michigan avenue, having J. C. Zimmerman in charge. The second branch will be used for dealers and users of Goodyear tires.

* * *

E. W. Snyder, the chemist for The American Tire and Rubber Co. has met with success in compounding Pará and mineral rubber. This company uses his method of splicing by steam curing, thus strengthening the splice.

* * *

The McGraw Tire and Rubber Co., of East Palestine, Ohio, has secured several acres of additional railroad frontage in anticipation of the enlarging of their plant to take care of the increased sales of tires.

THE RUBBER TRADE IN BOSTON.

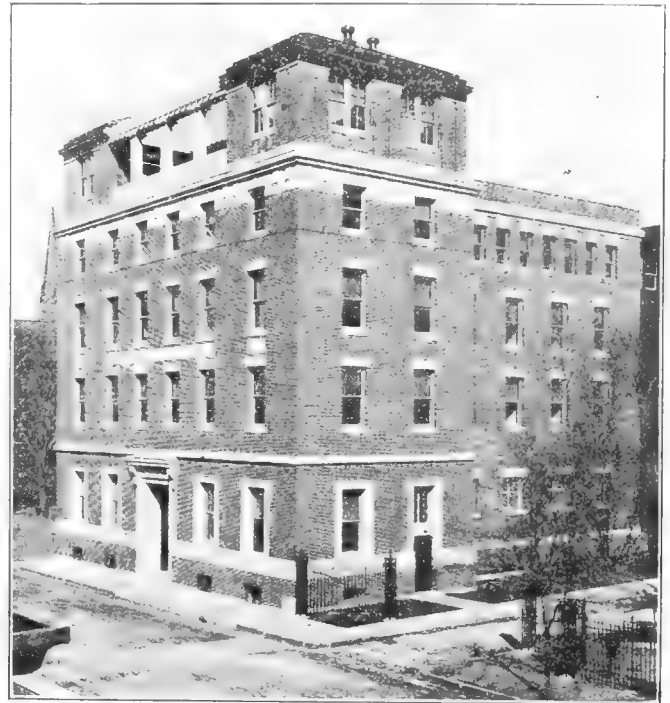
By a Resident Correspondent.

THE principal event of interest in the rubber trade in this city the past month was the Automobile Show, which has become so big that it had to be divided into two distinct shows. The real Show (with a capital S), was held first, when the pleasure motor cars were the principal attraction, and after this came another week when trucks and business vehicles were exhibited. These exhibitions gave the usual opportunity for tire manufacturers to exploit their wares, and they did so to an extent heretofore unequalled at a Boston exposition.

The tire business is lively—very—and all the agencies here are reporting an excellent business. Those factories hereabouts which make tires are rushing to the full capacity of their output. And the footwear manufacturers are likewise busy. The return to the policy, by rubber shoe manufacturers, of giving an extra five per cent. for early orders has enabled the salesmen to book a splendid volume of advance orders, which will assure the running of the mills until the actual consuming demand begins to be felt. In mechanical goods, the prospects may not be quite so brilliant, but a good business is doing in spite of a show of conservatism on the part of some customers, as evinced by the retail character of the orders.

* * *

Boston has another cause to be thankful that there have been fortunes made in the rubber business. But recently mention was



EVANS MEMORIAL BUILDING.

made in these pages of the Forsyth Dental Infirmary, a noble memorial to James Bennett Forsyth and George Henry Forsyth. Last month in this city the Robert Dawson Evans Memorial Building was dedicated. This is an addition to the Massachusetts Homœopathic Hospital and is the gift of Mrs. Evans. At the dedication, Dr. Frank C. Richardson presented the hospital, in behalf of Mrs. Evans, who was present.

In accepting the building, President Edward Haven Mason gave a brief history of the hospital, and at the close of his address presented to Mrs. Evans a beautiful gold key, in a silk-lined leather case.

The opening addresses were followed by brief remarks by Lieut.-Gov. Luce, who represented the Commonwealth in the absence of Gov. Foss. President Attridge, of the Boston City Council, accepted the gift in behalf of the city, in the absence of Mayor Fitzgerald. Other speakers were President Merlin, of Boston University; President MacLaurin, of the Massachusetts Institute of Technology, and Dean J. Sutherland, of Boston University School of Medicine.

The exercises were closed by invocation by the Rev. Edward Cummings.

The building is of brick with limestone trimmings. On the main floor is a lecture hall with a seating capacity of 250, in which popular lectures on hygiene will be given. There are also sev-

eral offices and examination rooms. The second and third floors are fitted up as a hospital proper in the most up-to-date manner, there being several private rooms, as well as small wards. There are also accommodations for the resident nurses. The fourth floor contains seven large laboratories for physical research, the museum, and rooms for physicians and nurses.

This splendid addition to the hospital will add largely to its usefulness to the profession and the public, and as a monument to the memory of R. D. Evans, it will be a blessing to hundreds, and perhaps thousands in the years to come.

* * *

The death recently of two members of the old auction house of Johnson, Moody & Co. brings to mind the rubber shoe auctions which were an annual feature of the trade the last quarter of the nineteenth century. This method of selling the excess stocks of rubber footwear at the end of the season was an evolution from the older custom in the shoe trade of distributing these goods in the most direct, though not always in the most satisfactory manner.

Shoe manufacturers, in the old days of 50 or 75 years ago, brought their wares to Boston, and consigned them to auction houses. The two principal ones were J. H. Lester & Co. and J. J. Henry & Co. Buyers representing the wholesale shoe dealers of the South and West attended the weekly auctions, and shipped their purchases to the houses they represented. Sometimes a few rubber boots and shoes would be included in these weekly sales. But in 1875 a large consignment of Meyer Rubbers were offered, and quickly snapped up. The success of this led Johnson & Moody, who succeeded J. H. Lester & Co., to hold a rubber auction in 1877, when there were offered thousands of cases of rubber boots and shoes, factory-damaged, out-of-style, and left-over stock. Buyers flocked to Boston to attend the auction. Mr. Nazro officiated as auctioneer, and on the first day for eleven hours he averaged 200 sales per hour, yet the next day, and the third he kept up the pace, and that auction went down in history as the inauguration of a new system of getting rid of all manufacturers' excess stock at the end of the season.

Each year thereafter the rubber auction was a regular established feature of the footwear trade, but after a while it was proven beyond a doubt that it tended to hinder the regular trade, buyers holding off until the auction. One of the largest buyers of these stocks was Wm. F. Mayo & Co., or their predecessors, Edmonds & Mayo, and a few years ago arrangements were made with this house to take and distribute such excess goods of the United States Rubber Company, when the Mayos discontinued their leather shoe business and have ever since dealt almost exclusively in rubber footwear. And that was the end of the rubber shoe auctions which used to bring to Boston hundreds of buyers from all parts of the country.

* * *

Francis H. Appleton is back from his Panama trip, which so delighted him that he has sent his son, F. H., Jr., over the same route and at present writing the latter is in Jamaica automobiling over its splendid roads and enjoying its beautiful scenery.

* * *

The Rubber Scrap Dealers Club and the Rubber Reclaimers Club will work together to secure better packing of waste rubber, and will endeavor to eliminate some of the evils which have crept into the trade.

* * *

President Hood and Vice-President Appleton, of the Rubber Club of America, attended the luncheon of the National Association of Manufacturers at the Algonquin Club, March 19.

* * *

Wallace Page, of the Shawmut Tire Co., put up an interesting and handsome exhibit at the Automobile Show, which was to some extent a duplicate of that shown at the New York exhibition, with certain amendments and improvements. The rubber

tree was there, with its herring-bone tapping, but the latex refused to flow, owing to some defect of the internal mechanism. However, the public was interested in the constructional exhibit of the tires, and orders are coming in for the non-skid block tread tires in satisfactory amounts.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

THE offices of the Chicago Rubber Clothing Co. will be removed on May 1 to the eleventh floor of the new North American building, South State and West Monroe streets. The new building is one of the most conspicuous, from an architectural standpoint, in the downtown district, and is located in the heart of the business section. The company at present is located at 208 North Fifth avenue.

* * *

Chicago tire men are greatly interested in the fate of a bill proposed in the State of New York to compel tire makers to place the date of manufacture on their products. Protests against such legislation is heard on every hand. J. C. Matlack, of the Ajax-Grieb Rubber Co., is one of those opposed to the bill.

"The bill will impose an unnecessary restriction on the trade and will create a false impression in the minds of dealers and consumers," he said recently. "The average tire is not a bit worse off for six months' or a year's seasoning, and probably the better for it, yet the consumer, looking at the tire, is bound to say: 'I don't want an old tire. Give me a fresh one, a new one.' If the dealer tries to say that the tire is no worse off for being a few months old, the customer will likely put his remarks down to self interest. The dealer won't want to carry stock if it must be dated, and so the burden will fall upon the shoulders of the manufacturer. The bill is not needed, and if it becomes law will give rise to a complex and difficult situation. It will not serve the public interest as far as I can see."

* * *

The Punctureless Tire Co., of Illinois, recently moved its offices one block south in Michigan avenue to new quarters at Nos. 1323-25. On account of increased business, larger offices were needed, and one more room has been added in the change. The concern claims that the Dahl Tire filler is the answer to the question of why there has been such an increase.

"Our newspaper advertising during the last two weeks has brought us more than 4,000 inquiries, which shows that people are looking for something in this line," said Mr. Hagerling, of the Punctureless Tire Co. "It is an assured fact that the perfection of a tire filler will do a great deal to promote the use of motor cars."

* * *

W. W. Wuchter, general manager of the Swinehart Tire and Rubber Co., is one of the enthusiasts on the subject of tires for commercial cars. Recently he said:

"In claiming a large share of the credit for the advancement of the commercial truck industry we do not hesitate to admit that tires are usually the largest item of expense connected with the up-keep of the commercial car. Nevertheless we have made real progress toward remedying these conditions. Three years ago there were no demountable tires on the market. We were convinced that it was necessary and our present type has been on the market for nearly three years."

* * *

Another deal which marks the exodus of the wholesale rubber goods concerns from the congested downtown district to the West Side, was a recent transaction closing the lease of a four-story building to be erected at 210-12 South Jefferson street to the Beacon Falls Rubber Shoe Co., of Beacon Falls, Connecticut. The new building will have a ground-area of 70 x 150 feet and will be equipped with elevators, automatic sprinklers and heating

plant. The lease runs for a term at an aggregate rental of \$90,000. The Beacon Falls company at present is located in quarters at 307 West Monroe street, in the heart of the wholesale rubber goods district.

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

FEBRUARY and March brought a decided improvement to the rubber trade in all parts of Rhode Island. Increased orders were so much in evidence that the National India Rubber Co. at Bristol announced a decided enlargement of output during the latter part of last month, and the Woonsocket Rubber Co. rushed its annual stock-taking at the Alice and Millville mills for the purpose of getting it over as quickly as possible.

At the Alice mill of the Woonsocket concern the last day of making before starting the work of going over the stock was on March 27. Operations will be resumed on April 4. This was really devoting only five days to an undertaking that usually takes a full week. At the Millville mill the time was even shorter, from March 28 to April 3. Full forces will be taken on at each plant at the reopenings. Fifty-six hours a week in the Woonsocket plant and fifty-four at that in Millville are the schedules, the full legal limits in Rhode Island and Massachusetts.

* * *

The first real rush of the season began at the plant of the National India Rubber Co., Bristol, March 6. This resulted in the re-employment of nearly 200 hands who were thrown out of work when three departments were closed and moved to Cleveland, Ohio.

The orders were for footwear, principally arctics and tennis shoes. An increase in output from 23,000 pairs of footwear daily to between 26,000 and 27,000 has been made since that time. Le Baron C. Colt, agent for the company, stated that he expected a continuance of the good business at the time, and his expectations have been fulfilled thus far.

Business in the wire insulation department of this plant is so brisk that it is being kept open up to 10 or 12 o'clock every week night.

* * *

It required seventy-eight freight cars to move the machinery of the closed departments at the National India Rubber Co.'s plant, Bristol, to Cleveland, Ohio.

* * *

The Roger Williams Printing Co. was incorporated recently at the State House, Providence, Rhode Island, for the purpose of engaging in that city in the manufacture, printing and dealing in textile and rubber goods and supplies. The incorporators were Alfred G. Chaffee, E. G. Luther and John A. Tillinghast. The capital stock is \$5,000.

* * *

One result of the success of Colonel Samuel P. Colt in regaining the management of the Industrial Trust Co., Providence, recently has been the closing of the Mechanics' Savings Bank, an old institution which has been located not far from the Industrial Trust headquarters on Weybosset street, but which has been a subsidiary of the big concern for years. The business of the branch is to be carried on in the rooms of the Trust company.

* * *

The Bourn Rubber Co. and the Cooper Hose Mender Co., Providence, are among several hundred business concerns in this city which have petitioned the Special City Council Committee on Lighting Franchises to give the Connecticut River Power Transmission Co. permission to enter this city. The franchise of the Narragansett Electric Lighting Co., of which Arthur L. Kelley is president and Colonel Samuel P. Colt a director, expires this year, and an effort is being made to prevent it from again securing exclusive rights.

The plan of reorganization of the Consumers' Rubber Co., proposed by the receiver and a committee of stockholders as a result of the financial difficulties which the concern found itself in shortly before Christmas, was discussed at a meeting held March 27.

Since the beginning of the receivership the plant has been in operation, but Terence McCarty, general manager, has been made defendant in a half dozen law suits, and banks have been filing suits against each other over the payment of notes. The last suit filed in the Superior Court was that of Tobias Burke, claiming \$7,500 damages on a \$5,000 note, made December 26, 1911. A writ of attachment was filed so as to cover the real and personal property of the company.

If the reorganization plan is accepted, the concern will be sold to a company which will issue certificates of indebtedness which it will be compelled to retire before paying dividends on its own stock. This will not, it is expected, settle all of the court litigation, however, unless an agreement is reached.

* * *

Several employes and officials of Bristol's rubber concerns are active in an Improvement Association, formed on March 5, for the purpose of booming the town.

* * *

A wind storm recently took off a portion of the roof of the Colt High School, presented to the town of Bristol by Colonel Samuel P. Colt. The occurrence caused general amazement, as the building is a palatial structure, in the construction of which no expense was spared.

* * *

James Scott, for many years a teamster and later a clerk for the National India Rubber Co., Bristol, Rhode Island, died at midnight, March 8, at his home, corner of Hope and Franklin streets, in that town. He was 56 years old. Two daughters and two sons survive. The funeral was held Monday, March 11, at St. Mary's Church.

THE RUBBER TRADE IN SAN FRANCISCO.

(By a Resident Correspondent.)

EVERYTHING seems to be shaping up most favorably for California this year. During the month of February there was an almost total lack of rain, and the future began to look dubious. But just before the grass and grain had begun to suffer from the long-continued drought, a storm broke over the entire State of California, and since then, during most of March there have been continued rains, so that instead of a dry year this State will now enjoy one of the most productive summers of its whole history. In fact, conditions were never more favorable for bannan crops than they are at this time, and it is more than probable that an era of unusual prosperity is at hand. Unquestionably the rubber industry will receive its fair share of the benefits, and the rubber merchants are consequently in a very optimistic frame of mind.

* * *

R. H. Pease, president of the Goodyear Rubber Co., reports that business is steadily forging ahead, and that each week shows an increase in business over the same period last year. "The fine rains which we have had since the first of this month," he said, "are very encouraging, and our customers naturally used up their stocks of boots, shoes and rubber clothing, so that they have been reordering liberally. The snow in the mountains will have another beneficial effect by furnishing water later on in the summer for hydraulic mining and irrigation, which means prosperity to the State and business for rubber merchants."

* * *

The Western Belting and Hose Co., 518 Mission street, has opened a very attractive branch store in Los Angeles. The new

store is under the management of Mr. Gilmer of that city. It is located at 328 East Third street, in a rapidly growing business center.

* * *

George Dodge, now of the Mineralized Rubber Co., of New York, is now in San Francisco visiting his brothers, who are connected with the Western Belting and Hose Co. of this city.

B. S. Gibbs, representing the Manhattan Rubber Co., is now making a visit in San Francisco.

* * *

C. A. Wilhoft, manager of the packing department of the New York Belting and Packing Co., of New York, is spending a few days in San Francisco, visiting the company's local branch.

* * *

W. J. Gorham, of the Gorham-Revere Rubber Co., has just completed a combined gasoline engine and pump which will prove most efficient and successful in the fire service. He has reduced the weight and increased the efficiency to such an extent that he has now an engine and pump which can be carried on an automobile truck and which will do the work of the best steam engines, without danger of breaking or stalling, which has heretofore been the objection to gas engine pumps. The pump was completed several months ago, and the best engineers report that its efficiency surpasses anything of its kind. The difficulty was to get a light engine of the desired power. He adopted the multiplex compressor system to provide the engine with a steady pressure whenever the streams were shut off. The engine weighs only 2,600 pounds and has 136 horsepower. Mr. Gorham does not claim any new invention, but he has used the best modern ideas to get an engine that was good and at the same time light. The ordinary engine to do the same amount of work will weigh nearly 20,000 pounds.

* * *

M. Sawyer, of the Sawyer Oil Clothing Co., was a recent visitor in San Francisco.

* * *

Mr. Spadone, manager of the Eastern offices of the Gutta Percha and Rubber Manufacturing Co., has just returned East after a visit to the coast branch.

* * *

A new portable hose rack has been invented by some of the boys at the offices of the Gutta Percha and Rubber Manufacturing Co., which promises to be a success.

* * *

E. G. Bernthal, special representative of the Goodyear Tire and Rubber Co., has been on an extended trip, visiting the branches and agencies throughout the Northwest.

* * *

Thomas Wilkenson, manager of the local branch of the United States Tire Co., recently called together a meeting of the salesmen for this concern, located on the coast. The occasion was the visit of R. R. Drake, manager of the service department of the firm at New York. Mr. Drake presided over the meeting and gave all present the benefit of his experience.

* * *

The Goodyear Tire and Rubber Co. of California is the name under which this company has incorporated in this State. The officers are: N. B. Taylor, president; L. Lingenfelder of Los Angeles, vice-president; J. F. Wise, secretary-treasurer. The board of directors will be N. B. Taylor, J. F. Wise and E. Lingenfelder, all California men, and H. B. Ball, of Akron, Ohio. The headquarters are in San Francisco. J. C. Weston, who has been district manager of this concern, has moved from San Francisco to Chicago to take charge of the Central district. C. A. Gilbert has gone from New York to San Francisco to take Mr. Weston's place. While here, H. B. Ball, who has charge of the company's clearing and auditing departments, spent some time in auditing the accounts here. He also looked after completing ar-

rangements for the company's new quarters on Van Ness avenue and Sutter street.

* * *

The Acme Machine Co. of this city is meeting with excellent success with the air pocket tire which it recently patented.

The Standard Tire Protector Co., of Akron, has opened a branch office in San Francisco at the branch of the Goodyear Tire and Rubber Co. on Golden Gate avenue. E. C. Newbauer is the new coast manager.

A new corporation, known as the W. B. Guyton Tire and Rubber Co., has recently been organized in this city.

The Republic Tire and Supply Co. is the name of a new corporation just organized in San Jose by G. L. Fish, C. N. Hill, O. M. Fish and S. G. Thompkins, with a capital stock of \$25,000, fully paid up.

The Plant Rubber and Supply Co. has been incorporated in San Francisco. The names of the incorporators are E. H. Pierce, A. A. Cailleaud, F. L. Fenton, H. C. Allen and J. V. De Laveaga.

THE RUBBER TRADE IN TRENTON.

By a Resident Correspondent.

THE employees of the Empire Tire Co. have formed an organization known as the A. R. Williams Social Club. The officers are: President, William J. Harney, Jr.; vice-president, W. Masterston; secretary, J. E. Childers; treasurer, A. W. Williams; trustees, N. Moncrief, W. Schultz, F. Taft, John Prince and William K. Ryan; sergeant-at-arms, Martin Burgess.

* * *

The Weldon Roberts Co., of Newark, New Jersey, has been incorporated in the Secretary of State's office with an authorized capital of \$100,000. The concern is authorized to manufacture all kinds of rubber, but it is understood that its activities will be principally in pencil erasers, ink erasers and other stationers' rubber supplies.

Weldon Roberts is known to the trade as a high-grade rubber eraser maker of long experience. In December, 1910, Mr. Roberts disposed of his interests in the C. Roberts Rubber Co. (of which he was president, and which his uncle, Christopher Roberts, founded in the early fifties) to the Eberhard Faber Co., of New York City. He traveled for a year in Europe and saw much of rubber manufacturing conditions in France, Germany, Russia and England. He proposes to make good use of his experience gained in observation on the other side.

* * *

The Empire Rubber Co. has awarded contracts for the erection of three buildings to replace the buildings damaged last month by fire. The new buildings will be of brick and frame and will cost about \$10,000. The buildings will be used for storage purposes.

* * *

The Crescent Belting and Packing Co. has installed a number of new braiding machines. This company is working day and night shifts in the effort to keep pace with the flood of orders sent in by the traveling men. The demand for the product manufactured by this progressive concern is increasing every month, and to handle the growing business it will be necessary in the near future to enlarge the plant, which now covers many acres in East Trenton.

* * *

C. H. Semple, president of the Empire Tire Co., has returned to Trenton after a two months' visit to Cuba, Bermuda, Palm Beach, Daytona, Florida; Camden, South Carolina, and other Southern points. President Semple returns much benefited in health. While in Havana he looked over conditions in the new Republic and got an insight into the methods of doing business in the island which will doubtless be of material benefit to his company.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

UNDERSTAND that at the meeting of the India Rubber Manufacturers' Association in January, some divergence of opinion was expressed as to the policy of reducing the price of rubber goods, owing to the fall of Pará rubber to 4s. 4d. per pound. The advocates for no reduction were, however, in

THE COURSE OF PRICES.

a minority and were outvoted. Their prediction, however, that the immediate future would show a rise in raw rubber values has proved quite correct, as 4s. 7d. to 4s. 8d. was the February figure. The prophecy of a rise rather than a fall in February was based, I believe, on the somewhat freely expressed opinion that London and Brazilian interests are acting in unison to keep up the price, 5s. per pound being the figure aimed at. It goes without saying that this concerted action is not altogether to the liking of the manufacturers, who think that the general situation in regard to supply and demand warrants a market quotation of about 3s. 9d. per pound.

Of course it is one of the most difficult things in the world to foretell the course of the rubber market, and this is by far the greatest source of the worry which the manufacturer experiences. Owing to the fact that many of our important firms are private companies, whose accounts are not published, we shall probably never know how many of the leaders of the industry were convinced that rubber was going to 15s. per pound, and consequently bought ahead. Certain names are permanently mentioned in this connection, but I should not be justified in recording them. The recent sales ahead of plantation rubber for two years at figures showing a reduction on present prices may be taken as indicating that no recurrence of the boom of two years ago is anticipated, and anyhow the losses that those firms which bought ahead at inflated prices have incurred will certainly act as a deterrent in the case of others, and therefore any incipient boom will not get the necessary support for its development.

THIS show, promoted by the Society of Motor Manufacturers and Traders, Limited, was held at the Rusholme Exhibition Hall, Manchester, in February, and both in

NORTH OF ENGLAND MOTOR SHOW.

point of the number of exhibitors and the large attendance of visitors proved in every way a great success. In fact it was the largest show of the kind ever held outside London. Although automobiles of every kind for pleasure touring and commercial purposes were on view, perhaps the most noticeable feature was the low-priced two seater for which a largely increased demand is anticipated in the near future. This is the type of car for which a recent contributor to THE INDIA RUBBER WORLD announced that there was likely to be but little demand in Continental Europe. I can quite understand this, because on the Continent generally there is an absence of that large class of comparatively well-to-do people with incomes ranging from £500 to £1000 per annum, which is so characteristic of English middle-class life. Certainly in recent years, and more especially in Germany, the growth of industry, and its concomitant—the increase of national wealth—is tending to the production of a well-to-do middle class, resembling that of England; and this tendency will doubtless lead to an increased demand for lower-priced cars, such as are now wanted in England.

But to keep more particularly to the exhibits of the show, it must be said that while old friends as regards tires were there in force, there was little of real novelty which calls for special mention. Of comparatively new tires mention may be made of Almagam tires and Wood-Milne steel rubber tires. Quite a nov-

elty was to be seen in the wheels shown by the Hawksley Pneumatic Wheel, Limited, of Manchester, and recently put on the market after some years' experiment and trial. It consists of a stamped steel plate with three or four circular apertures, in each of which is fitted a pneumatic cushion, composed of two outer discs and an inner tube, the cushions being held in position by two steel rims, one of which is detachable. I understand that the pneumatic cushions referred to are supplied by the Palmer Cord Tire Co., apparently being made of the best quality red rubber. Another novelty, also introducing rubbered cord, is the Marshall Tire of London, this having a wrapping of cord impregnated with rubber on its tread. Among the new comers at this show may be mentioned the Goodyear, representing the great Akron company. Most of the literature available to the public was of the usual type, descriptive of the merits of the particular exhibits, but special mention may be made of "A Book for Drivers," containing instructions for fitting, detaching and repairing tires, which was to be obtained for the asking at the Michelin stand, and which is replete with useful information.

THIS plant, which is situated at Pendleton, Manchester, adjoining the factory of Messrs. Mandleberg & Co, Limited, was offered for sale by auction on March 5, and was withdrawn, no offer above £3,000 being forthcoming—a figure

UNITY RUBBER COMPANY, LTD.

which the auctioneer said he could not take seriously. It was announced that in the last four years £24,000 had been spent on the works, which were electrically driven throughout, and contained a complete range of the most modern machinery for mechanical rubber manufacture. The present lease expires in June this year, but an agreement has been made with Messrs. Mandleberg to give a new lease for 14 years at a yearly rent of £370 to any purchaser of the works, such lease to be determinable at the end of 7 years if the purchaser so desires. Messrs. Mandleberg are the principal proprietors of the present Unity company, but have decided not to go on with mechanical rubber manufacture. Great preparations had been made for the turning out of rubber heel pads, the moulds for this and for the tire business having cost about £4,000. There was quite a large gathering at the sale, and the fact that no genuine bid was made for the machinery is rather surprising. It was announced that the property would now be open to sale by private contract.

AN interesting discussion took place recently in the pages of our London contemporary, as to whether it paid manufacturers to reclaim their own scrap rubber, and the views expressed were somewhat divergent. A good deal of course depends

RECLAIMING NOTES.

upon the amount and quality of the scrap available, and where it might pay one manufacturer, in other cases a different result might be experienced. This is leaving out of account altogether the technical skill with which the reclaiming is carried out. Here the ordinary works' manager may easily prove deficient, and the professional reclaimers say that the strong point of the product, as made at home, is that it does not have to be sold in the open market against competitive brands. I am inclined to think that there is something in this, especially as regards the higher-priced brands now so commonly sold by reclaiming works since the introduction of the alkali and analogous high-pressure processes. Where the reclaiming works will always have the advantage over the rubber factory is the better terms on which it can purchase its large requirements of scrap in the market.

A quite modern development in the reclaimed rubber trade, and one which had its origin on the Continent, is the demand

of the rubber manufacturer to have an analysis of the reclaimed rubber as a preliminary to purchase. It is now quite the common thing to supply not only the chemical analysis, but also the tensile strength. This procedure is not always to the liking of the reclaimers, but it has been forced upon them and they submit with as much grace as possible. Certainly this procedure is not universal, as at least one very important concern has hitherto declined to furnish the particulars asked for, and has announced its intention to continue business on the old lines. A difficulty arises in the fact that the reclaimers get no corresponding analysis from the rubber scrap merchant; therefore the stock which they buy, though sold as similar to previous deliveries, may differ sufficiently to cause trouble with the purchase of the reclaimed rubber, if he feels inclined to hold the reclaimer to the exact figures of the analysis he has submitted. It seems to me that a certain amount of latitude as regards the figures given must be recognized by the buyer as essential under the particular circumstances.

To refer to another topic the quotations for the price of scrap rubber in New York as given month by month in *THE INDIA RUBBER WORLD*, are of interest to reclaimers on this side, especially where they vary from English quotations. Some of the figures are practically identical. In other cases I note, taking the figures in the February issue, that motor tires and goloshes are rather cheaper in England, while cycle tires, garden hose and matting are dearer. By far the greatest difference is to be seen in the quotation for cab tires, the American being very much cheaper than the English. This, I am told, by a man who has had experience in reclaiming in both countries, is due to the inferior quality of the American tire. I am not saying this in any contentious spirit or with a desire to arouse the passions of my American readers, but merely pass it on as a plausible explanation of what has struck some people as an anomaly.

NEW RUSSIAN SYNTHETIC RUBBER?

With reference to the alleged sudden discovery of a synthetic rubber by Professor Ostromislensky, of Moscow, it is reported that in the course of a study of the properties of benzole, the above-named chemist discovered a substance very similar to rubber. In the further elaboration of this discovery he is said to have very soon produced a synthetic rubber quite equal to the natural product. Ultra-violet rays are understood to play a prominent part in this process of production. The price is stated to be 23 rubles per pud (about 33 cents per pound), and the organization is reported of a company to exploit the invention.

Commenting upon the above statements, the "Gummi-Zeitung" remarks:

"The statement that this report has caused great sensation in the rubber industry is in every respect incorrect: experts have not been disturbed. Why should not a Russian scientist succeed in discovering synthetic rubber, after this has already taken place in Germany and England?"

"That is, however, all. That thereby the product is already on the market, that a fixed price can be quoted for it, that its properties have been tested, etc., we doubt on the basis of the experiments made in this branch.

"Synthetic rubber does not appear suddenly; it does not in a single day become an industrial product. Whether Germany, England or Russia may first succeed in producing it in marketable condition, remains to be seen.

"For the present we are still pretty far distant from this end, and even in Moscow there are no new hitherto untried materials available as sources. For the present there is, consequently, no ground for anxiety."

A Swiss firm with an extensive business in all parts of Switzerland, desires the agency in that country for American rubber novelties, according to Consular Report No. 8,090.

PROPOSED FRENCH DUTY ON RUBBER.

By a motion submitted to the French Chamber of Deputies, it has been proposed to levy a duty upon rubber from countries other than the colonial possessions of France. In advocating this measure it has been urged that the French colonies are at a manifest disadvantage, as compared with the older and better supported possessions of other countries. The necessity is further indicated of opening up new territory for rubber and extending the production of existing sources of supply, with a view to attracting capital to the national colonies.

The fact is likewise prominently brought forward that rubber is the only French colonial product not favored by the French tariff.

In their patriotic zeal, these French legislators seem to have ignored the fact that the rubber production of the French colonies is far from being sufficient to cover the requirements of their national rubber industry. Moreover, the grades there produced are not regarded with the same favor as those from other sources. Satisfaction has been expressed at the French Minister of Commerce having declared himself as being opposed to the idea of a duty on rubber.

TIRE PRINCIPLES MATHEMATICALLY EXPRESSED.

In an address recently delivered by Professor André Michelin before the Society of Civil Engineers of France, some interesting statements were made relative to the relations between the weight placed on a pneumatic tire and the amount of wear to be secured from the tire. The professor said:

"We have experimented to discover the relation existing between the lasting power of a tire and the weight it supports, and from the results of a great number of tests we have been able to deduce this empiric law: That the mileage of a tire is inversely proportionate to the cube of the weight it supports.

"Thus if the weight is doubled, the wear will be approximately eight times more rapid. If the weight be increased by even so little as 5 per cent., the wear on the tire will be increased about 14 per cent. . . . The solid rubber tire has been retained simply to lessen the noise and reduce the violence of the jolting."

He also made another exceedingly interesting statement regarding the incompressibility of rubber:

"Rubber, unfortunately, although elastic to a remarkable degree and extremely pliable, is nevertheless almost incompressible; much more so, indeed, than the greater number of solid bodies—a strange fact, which is but little known.

"Consequently, tires made of solid rubber give practically the same result as if hollow and filled with water. With such a tire, a jolt would cause but a very small alteration in its shape, on account of the slight displacement of the molecules of water, which move slowly among themselves.

"But in an air-filled tire a similar jolt would cause a great change in shape because of the instantaneous displacement of a complete layer of the compressed air, the molecules in this case being extremely rapid in their movement."

A French patent has been issued for a process of applying rubber to the manufacture of billiard cues.

Paris trade advices state that in 1910 France exported 4,765,420 pounds of rubber tires, valued at \$5,334,387. The sales were to all the leading countries of the world.

CESSATION OF BOHEMIAN RUBBER FACTORY.

It is reported that the machinery and stock of the Graslitz (Bohemia) Rubber Works have been purchased by a German rubber factory; it not being in contemplation to again operate the Bohemian concern.

SOME RUBBER THAT STUMPED THE EMPEROR.

EVERYBODY at all familiar with the history of the rubber industry will remember the great furor created in the World's Fairs held in the "fifties" in London and Paris by Charles Goodyear's rubber exhibit. If anything, the Parisians were more excited over it than the English were. A great many stories showing the absorbing interest taken in Goodyear and his wonderful rubber display have been preserved in the literature of this industry, but here is a new one that appears in a book entitled "Memoirs of Many Men," written by Maunsell B. Field, who was the United States Commissioner at the World's Fair in Paris held in 1855, which shows that the Emperor Louis Napoleon, while greatly attracted by what Goodyear had to show, was a little confused in his deductions because of the military tinge which his thoughts naturally took. He saw a pile of large rubber balls and immediately concluded that they must be cannon balls; but here is the way Mr. Field tells the story:

"The Emperor approached me and remarked that he had that afternoon walked through our department of the exposition—this was just before it was open to the public—that he had seen many things there which interested him, but that nothing had so much pleased him as the exhibition of vulcanized india rubber. Among the articles he had noticed something which had puzzled him ever since. He very much regretted that I was not present at the time of his visit.

"Here I interrupted him to say that I very much regretted it myself and that if he had sent me an intimation of his purpose I should have been certain to attend.

"Well," he answered, 'in one corner I saw, stacked as one sees them in an artillery yard, a pile of vulcanized india-rubber cannon balls. There was nobody there to answer the inquiries which I desired to make. Perhaps you can explain the matter to me.'

"I had not even seen the balls in question and had to say so.

"I cannot imagine," resumed his majesty, 'how any preparation of india rubber can be used for projectiles. It has often occurred to me that, in combination with other materials, it might be made useful for defensive purposes.'

"I was compelled to admit that it was equally mysterious to me how the inventor could have thought seriously of making cannon balls of it. After so unsatisfactory an interview the Emperor probably did not think that it would be civil to leave me immediately, so he asked me if I took much interest in military matters. I answered that I did not any more than civilians usually do.

"I was at that time residing very near the Palace of Industry. The next morning I went over before breakfast for the purpose of getting information upon the subject which had so puzzled the Emperor. I went directly to the india-rubber exhibit and sure enough, I found the balls there just as they had been described to me. It was too early for me to expect to see the man in charge, but there was a person in his place. I asked what in the world he expected to do with india rubber cannon balls.

"They are not cannon balls," he answered; 'they are footballs!'

But after all the Emperor was not so far out of the way, because the experiences of the last few years in our great cultural sport shows that the football is quite as much an instrument of carnage as the cannon ball.

AKTIEN-GESELLSCHAFT METZELER & CO., MUNICH.

Metzeler & Co., of Munich, in their annual statement, in place of the profit equaling \$138,885, made in 1910, report a loss for 1911 equal to \$185,000. Of this amount 85 per cent. is covered by the reserve fund of the company. The loss is chiefly ascribed to the large stocks of raw material held, and to the reductions in

prices of manufactured products. It is stated that orders representing \$1,000,000 have, however, been booked for this year.

ADVANCE IN PRICES OF GERMAN RUBBER STAMPS.

The Association of German Stamp Manufacturers has made an advance of 10 per cent. in the prices of rubber and other stamps. As stamp makers are under the provisions of the German Book Printers' wage scale, they consequently benefit by the 10 per cent. increase, which went into effect with the printers on January 1, 1912.

WHAT CONSTITUTES AN EXPLOSION?

Owing to certain differences in expert opinions as to what really constitutes an explosion, the Association of German Engineers has recently come to an understanding on that point with the German fire insurance companies. An explosion is defined to be "a sudden expression of force, resulting from the expansive effort of gases and vapors, it being indifferent whether the gases or vapors were present before the explosion, or were only formed in the course of the same." Under the term "explosions" are included those arising from explosives, from mixtures of gases, dust, evaporation of fluids and the expanding force of gases and vapors. Disturbances caused by the centrifugal force of rotating bodies or the tension of materials are excluded.

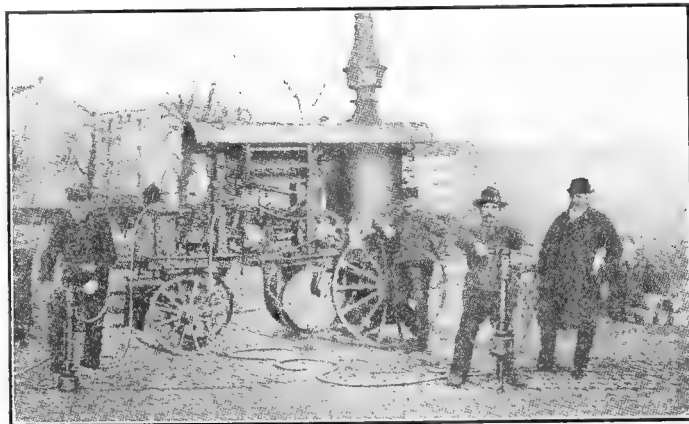
LIGA GUMMIWERKE, HEINRICH PETER & CO., FRANKFURT a. M.

Further particulars received from the new Liga Rubber Works rectify and supplement the provisional details quoted in the October, 1911, issue of THE INDIA RUBBER WORLD.

The company is under the management of Mr. Theodor Heiges and Mr. Heinrich Peter, the former, who was previously managing director of the Louis Peter Co., having assumed the commercial management of the Liga company; while the latter, who had been for ten years works manager of the Louis Peter Co., has undertaken the management of the new works. Mr. Louis Peter, Jr., and Mr. Frederick Peter (both previously connected with the Louis Peter Co.) are likewise interested in the new company, the specialties of which are cycle and commercial motor tires, heel pads and rickshaw pneumatics. Capital has been increased from \$37,500 to \$90,000.

TAMPING PAVING BLOCKS BY AIR.

A German inventor has devised an apparatus for tamping paving blocks with compressed air. The compressed air is supplied by a portable plant shown in the illustration reproduced



PNEUMATIC TAMPER FOR PAVING BLOCKS.

from "Popular Mechanics." A number of leads of hose and tampers may be used simultaneously. The tamper has a rod running through its centre, which rests upon the block, and which is worked up and down by the pneumatic mechanism.

RUBBER MATTERS IN JAPAN.

TO THE EDITOR OF THE INDIA RUBBER WORLD: When I last wrote to you in July, I did not expect that such a long period would elapse before my next letter to you. This brings to mind the truth of the proverb that "Time and Tide Wait for No Man." The only excuse I can offer—and that a rather flimsy one—is that there has been a dearth of news in the rubber business, and I therefore had very little occasion to write to you in this connection.

Since last July, the market prices of Upriver hard fine Pará have fluctuated between \$1.15 and \$1.30 gold per lb., not a very wide range of fluctuation, the minimum figure being still higher than the quotations given in June, at which some active business was transacted. The revision of the import tariff, with the heavier duty it imposes on nearly all lines of manufacture, should have stimulated the import of raw materials, but, although seven months have elapsed since it came into effect, we do not yet observe any remarkable change in the volume of imports, particularly in our line of business. This may be partly due to the financial problems involved in the earlier fluctuations of rubber, but the inactivity is also doubtless due to the industry still being in its infancy. Although it may appear trivial, however, in comparison with the vast extent of the rubber industry, not only in your country, but on the continent of Europe and in Great Britain, the rubber industry in Japan does show considerable progress. As statistics show, ten years ago the total volume of our rubber imports, including india-rubber, gutta-percha and rubber sheets, etc., did not exceed \$75,000 gold yearly. Today

yet to supply the domestic demand, still less do they enable us to engage in the export business.

As you will have learned from the newspapers on your side, affairs in China are in an extremely unsettled state, and of course this commotion has had a very deterrent influence on the trade between China and Japan. As the total of our exports of rubber goods to that country have not exceeded \$50,000 gold per annum, and the parcels have been of such a small volume as to be delivered principally by parcels post, the rubber industry has not been affected to any extent by the revolution. We trust that when matters are put on a more satisfactory basis, China may be a customer for our industry, and that the industry may improve, so that we may cater satisfactorily to the trade. We solicit your kind assistance, both directly and indirectly, to this end.

For your information, I now have the pleasure to enclose chart of the quotations of Borneo rubber for this year. The prices are based upon deliveries ex. wharf, Yokohama, in piculs of 133 pounds. Our Yen corresponds to 50.35 cents* of your money.

KENZO OKADA.

Tokyo, Japan.

INCREASED PRODUCTION OF TALC AND SOAPSTONE.

A REPORT of the Government Geological Survey shows that there was a considerable increase in the production of talc and soapstone in this country in 1910, the production for that year being 150,716 tons, an increase of 16 per cent. in quantity and of 30 per cent. in value over 1909. This increased production came chiefly from New York, with some assistance from Vermont, Pennsylvania and Georgia.

According to this report "New York increased 48 per cent. in quantity of output and much more in relative value. Georgia trebled its production. Vermont gained 10 per cent. in production and 14 per cent. in value. In Massachusetts, although the quantity reported sold was somewhat less than in 1909, the actual production increased about 16 per cent. in quantity and 7 per cent. in value. There was a decline in the production sold in all the other states with the exception of Rhode Island, but in New Jersey the decline was scarcely appreciable. In Virginia, which is the great soapstone state, the decline in quantity and value was only about 2 per cent.; in North Carolina it was 35 per cent., and in Maryland and California it was about 50 per cent.

"The variation in the production of the different states is in part at least due to variations in the immediately available deposits, but in general it may be said that the deposits are extensive and show no signs of depletion.

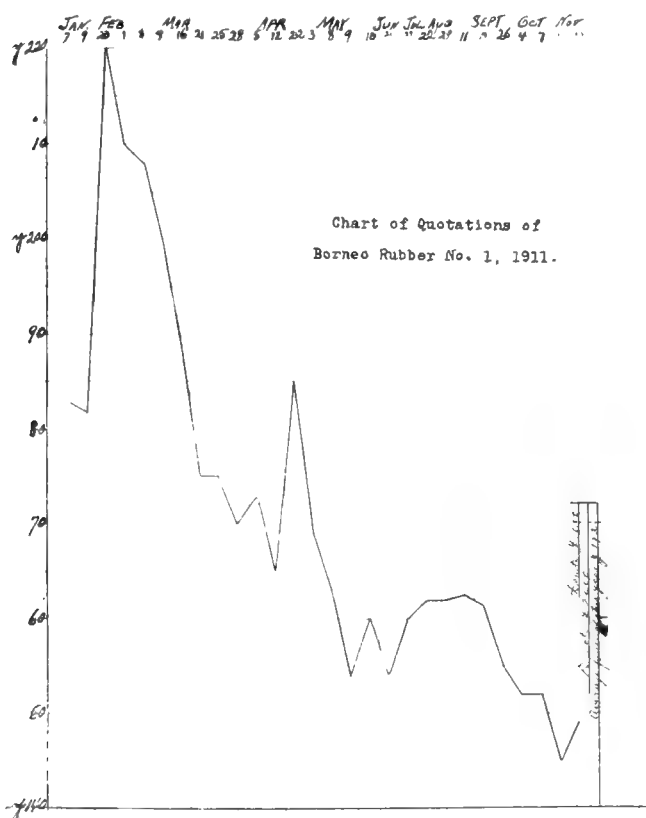
"In the best grades of talc the United States is deficient. They are imported chiefly from France and Italy.

"In 1910 nearly 11 per cent. of the material was sold as crude from the mine, about 7 per cent. as sawed into slabs, 15 per cent. as manufactured, and 67 per cent. as ground. The sale of rough talc and also of manufactured articles declined during the year, while the sale of slabs and of ground talc advanced greatly.

"The productive talc and soapstone belt of the United States is limited almost exclusively to the Atlantic States from New York and Vermont to Georgia. Outside of this belt there is only a small production in California."

SHINGLES OF ASBESTOS.

The industry of making shingles out of asbestos is said to be assuming considerable proportions in this country. This seems to be a logical development, as the asbestos shingle is not only light in weight, but fireproof—a tremendous advantage over the wooden shingle—and also weatherproof, so that it will last indefinitely.



this total has been swelled to \$1,000,000 gold, which figure does not include rubber manufactures, such as tubes, rods, etc.

Expansion has not been gradual throughout the ten years, however; the most rapid progress has been witnessed since the Russo-Japan war. Our manufactures, however, are not sufficient

Japanese Rubber Planting in Malay Peninsula.

By Our Regular Correspondent.

WHILE the development of Malayan rubber plantations has been largely effected by British capital, a certain share of that result is due to the operations of Japanese investors, who were encouraged by the exceedingly profitable character of the business in 1910, to plant Para trees in the Malay Peninsula. By August, 1911, these planters, 77 in number, had acquired, it is estimated, about 83,700 acres, of which about 15,800 had been planted, the aggregate investments representing about \$640,000.

Of these 77 plantations, about 57 are being operated as an additional occupation by Japanese dwellers at Singapore and other cities in the Federated Malay States. While it is claimed that these plantations have prospects of becoming more profitable than those owned by Europeans and Americans, about three-fourths of the planters are short of the funds necessary for their cultivation.

Owing to the disinclination on their part, by reason of differences in language and customs, to have dealings with the European and Chinese banks (with the plantation lands as security), and also from the wish to avoid the high interest charged by Indian usurers, the Japanese dwellers in the Peninsula established the system of "Lottery Associations" ("Mujinko," as called in Japanese), as an organ of monetary circulation for rubber plantations.

The rudimentary and very imperfect constitution of the lot-

tery association is as follows: "The duration of the association is usually fixed at 25 months, the membership numbering 25, each member paying a regular monthly contribution of \$60; or in some cases \$20 to \$30. All the money thus contributed can be borrowed for the purpose of his rubber plantation, by the member to whom it is adjudicated as a result of bidding. He has to give two or three sureties, paying the stipulated rate of interest as well as all the expenses of the monthly meeting. Any borrower under this system cannot bid again nor borrow any more from the lottery association, but must continue his monthly contributions and pay the interest on the amount borrowed; the number of bidders thus decreases each month; the rate of interest, as fixed by the monthly bids equaling 18 to 36 per cent. per annum. The first money contributed, however, can be borrowed only by a member who is a standing manager and one of the founders."

Now, there are thirty such associations among the Japanese planters in the Malay Peninsula. Some planters contribute to all of them; a larger number contribute to over half of them.

If the planters each contribute \$30 monthly to thirty lottery associations (each with 25 members or partners), the total advance to planters for rubber plantations would be \$22,500 per month. In addition to the help these associations give planters in need of funds, they serve the purpose of savings banks for their contributories.

JAPANESE INDIA-RUBBER IMPORTS.

	1909		1910		1911	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
India-rubber and gutta percha:—						
Crude	(a) 1,321,463 pounds	\$729,715	1,580,918 pounds	\$1,515,093	2,054,864 pounds	\$1,530,008
Plates and sheets (soft and hard).....	60,268 pounds	\$49,538	98,308 pounds	\$79,769	116,128 pounds	\$101,620
Tubes and rods (soft and hard).....	43,958	63,605	46,784	46,580	83,952	69,861
Other classes	31,329	32,323	134,951	49,346	563,920	148,767
	(b) 135,555 pounds	\$145,466	280,043 pounds	\$175,695	764,000 pounds	\$320,248
Engine packings	569,841 pounds	\$113,765	834,602 pounds	\$170,608	749,786 pounds	\$174,596
Hose and machine beltings.....	91,566	28,619	90,047	29,504	144,733	55,254
	(c) 661,407 pounds	\$142,384	924,649 pounds	\$200,112	894,519 pounds	\$229,850
Submarine and underground cables.....	2,704,045 pounds	\$178,591	9,667,184 pounds	\$794,272	3,383,440 pounds	\$188,456
All other insulated wire.....	5,933,081	755,474	7,137,327	815,416	19,735,170	1,849,810
	(d) 8,637,126 pounds	\$934,065	16,804,511 pounds	\$1,609,688	23,118,610 pounds	\$2,038,266
Rubber boots	8,975 pairs	\$10,768	3,090 pairs	\$5,802	8,597 pairs	\$18,114
Rubber shoes	24,337 pairs	12,332	16,625 pairs	7,351	40,273 pairs	19,851
Elastic boot webbings	18,571 sq. yds.	35,922	21,403 sq. yds.	47,122	32,035 sq. yds.	71,283
Waterproof cloth	280,120 sq. yds.	86,278	297,329 sq. yds.	91,914	47,181 sq. yds.	25,675
Elastic bands and cords .....	.....	21,174	.....	13,453	.....	22,895
Air pillows	23,330	13,085	28,397	16,321	24,204	13,986
Quilts and cushions .....	.....	9,519	.....	9,465	.....	7,242
Manufactures of india-rubber and gutta percha .....	.....	135,191	.....	141,503	.....	171,660
	(e)	\$324,269	.....	\$332,931	.....	\$350,676

SUMMARY OF VALUES.

	1909.		1910.		1911.	
	(a)	\$729,715	.....	\$1,515,093	.....	\$1,530,008
Crude	(a)	\$729,715	.....	\$1,515,093	.....	\$1,530,008
Manufactures	(b) \$145,466		\$175,695		\$320,248	
	(c) 142,384		200,112		229,850	
	(d) 934,065		1,609,688		2,038,266	
	(e) 324,269		332,931		350,676	
		\$1,546,184		\$2,318,426		\$2,939,040

As crude rubber is free under both measures, the growth of imports from 1,321,463 pounds in 1909 to 1,580,918 pounds in 1910, and 2,054,864 pounds in 1911, reflects the progress of the Japanese rubber manufacturing industry.

ENGLISH RUBBER-PLANTING COMPANIES.

A COMPARISON of the details given by the recently issued "Rubber Share Handbook" for 1912, with those of the previous annual volume, shows that there has been a net increase of 8 per cent. in the total number of rubber-planting companies with English offices, and presumably operating with English capital. The total in 1911 was 522, of which 30 do not reappear in the present volume, while the addition of 69 new names brings up the net aggregate to 561; or, including trust and investment companies, 589 companies.

The Malay States take the lead, Ceylon holding second place, as indicated by the following table:

	March, 1911.	February, 1912.
Malay States, etc.....	200	225
Ceylon	95	104
Java	44	43
Sumatra	35	39
Borneo	28	28
India	22	29
Oceania, etc.	4	4
Total Asia, etc.	428	472
Africa	50	52
South and Central America and Mexico	44	37
Total	522	561
Trust and investment companies..	23	28
Total	545	589

This increase in the number of companies would not by itself be more than a normal development, but the largely developed output of individual companies is reflected in the augmented figures of 1911 as compared with 1910, shown by lately published reports. There is, moreover, a further division of Rupee and Dollar companies, which have their offices in the East and are presumably working with oversea capital. These 140 companies handle an appreciable share of the Asiatic rubber production, in addition to that financed by the 472 English companies with Eastern interests. As 38 of the 140 are in the Malay States, 97 in Ceylon, and 5 in India, the aggregate interests of all the companies would be thus located:

Malay States	263
Ceylon	201
Java	43
Sumatra	39
Borneo	28
India	34
Oceania	4
Total Asia, etc.	612
Africa	52
South and Central America and Mexico.....	37
Total	701
Trust and investment companies.....	28
Grand total of companies.....	729

The relatively smaller extent to which English capital is represented in Africa, South America, and other parts of the world than in the East, is explained by the fact that other countries have important financial interests in the former directions. In the development of British enterprise in the East, the attractions to capital presented by the corporate form of business, have been clearly demonstrated.

One fact is shown by a comparison of the 1911 and 1912 handbooks; that while 28 companies with plantations in the Federated Malay States have been added to the list, only three have dropped out, the net increase being 25 companies, equalling one-eighth of the 1911 number. For Ceylon, there are 10 additions and only one withdrawal, making a net gain of 9 companies. Inasmuch as the additions doubtless represent the accession of fresh capitalists, as well as the introduction of additional capital by previous investors, the position of the Eastern rubber industry, from the standpoint of results, is evidently giving satisfaction to the interests involved.

RUBBER GROWERS' ASSOCIATION.

THE interim general meeting of the Rubber Growers' Association, held at offices of that body in London on February 12, was of interest as being the first assemblage under the new plan of holding the annual meeting in February, instead of during the holiday season later in the year. Mr. R. K. Magor, the president, was in the chair.

Dealing with only six months, the number of matters touched on in the report is necessarily limited, while they are of intrinsic importance. One of these is the question of scientific research. In Ceylon, there are two schemes being considered, which it is proposed to consolidate; thus strengthening resources and ensuring better progress. With respect to the work of the Malaya Research Fund, steps have been taken to increase the available funds, by inviting additional guarantees from companies, which have now reached the producing stage. While answers have not in all cases been received, there is every prospect of larger funds being shortly available. This would permit of the engagement of an expert in physiological botany and mycology, whose advice should be of considerable assistance to managers of estates in connection with tapping, as well as in dealing with pests and diseases.

Confining the scientific reports to the relatively small number of members who were guarantors, the chairman personally considered an unsatisfactory state of affairs. He expressed a preference for a system of general contribution by acreage, which would allow of the whole industry benefiting from the results of investigations undertaken at the common expense. In this connection, he referred to the example of the Indian Tea Association, the scientific department of which has a staff of four scientific officers, with fully equipped laboratories; their establishment having quite recently been further strengthened by the appointment of a mycologist. The necessary expenses are met to a great extent out of the funds of the association, obtained through a "per acre" subscription from its members, which had recently been increased for the special purpose of scientific research.

In addition to these subscriptions, the government of India and the governments of Bengal and Assam subscribe handsomely to the fund. In concluding his remarks on this subject the chairman suggested that the government of the Federated Malay States, which derives such large sums from rubber, should support the scheme financially. But, as he added: "Before we can ask governments to do this, we must first show that we are able to help ourselves by working together for the common good, as the tea industry has so successfully done in the way of scientific research." The importance of the object lesson thus afforded by tea was further urged by a reference to the fact that most of the planters now interested in rubber had gained their experience of planting in the tea industry.

Mr. Arthur Lampard, while advocating the proposed consolidation of efforts in Ceylon, referred to the possibility of the association and the Imperial Institute co-operating in the direction of scientific rubber research.

The important subject of estate sanitation has been the subject of communication by a sub-committee of the council with Dr.

Malcolm Watson, who is drawing up a series of recommendations in the form of a few simple rules, to be distributed among estate managers for their guidance.

STANDARDIZATION OF RUBBER.

The chairman briefly referred to the desirability of standardization of manufacture of rubber from plantations in the Middle East, adding that the trade does not desire endless varieties of manufacture, but uniformity and standardization. In seconding the motion for the adoption of the report, Mr. Arthur Lampard further urged the importance of standardization, adding: "It is absolutely a genuine and necessary part of the rubber manufacturer's business to be in a position to cover his commitments forward. If we standardize rubber, as is already done in Fine Pará, we shall get rid of much of the difficulty of the manufacturers, and further popularize the use of plantation rubber."

THE NEW YORK RUBBER EXHIBITION.

In connection with the approaching exhibition the recommendation of the exhibitions sub-committee to the effect that the gold, silver and bronze medals of the association be offered on that occasion, was adopted. Mr. Noel Trotter, it is understood, will represent the association at the exhibition. In the absence of Mr. McEwan, Mr. Bethune addressed the meeting and explained the work which the sub-committee had done in the matter.

THE DEMERARA RUBBER CO., LIMITED.

THE adjourned general meeting of the Demerara Rubber Co., Limited, was held in London on Thursday, March 7, at the Commercial Sales Rooms, Mincing Lane, E. C., with Mr. Isidore Clifford, chairman of the board, presiding.

Some time prior to this meeting the stockholders had appointed a Committee of Inspection to investigate the methods and condition of the company and to make a full report. This report had been sent to the stockholders and was followed a little later by a reply to it from the board of directors. It was expected that the meeting would be quite protracted and possibly not very tranquil, and these expectations were fully realized. The directors' point of view was ably presented by the president, and the opinion of the Committee of Inspection fully set forth by the chairman, Mr. R. W. Smith. There was a full and free debate, growing rather heated as the meeting advanced; but finally the motion to accept the report of the Committee of Inspection was put and carried by a large majority.

The differences between the directors and the stockholders have been referred to private arbitration; and it is the hope not only of those who have invested their money in this enterprise, but of all those who wish to see English ventures in English colonies successful, that the differences in this company may be happily adjusted, and the outlook for its future much improved.

ENGLISH RUBBER LIQUIDATIONS.

Commenting upon a cable to the effect that 32 English rubber companies had gone into liquidation last year, with a total authorized capital equalling \$18,000,000, the "Times of Ceylon" remarks: "There are still companies in existence in London which can only go the same way. Standing by themselves they form a striking commentary on the situation which was created by the rubber boom. Practically all the total failures have been wild rubber ventures, but all the directors involved have not been wild rubber men, or only figure heads or company promoters. In two or three instances men experienced in Eastern plantations too readily permitted themselves to be drawn into the net. They relied upon reports which appeared all right on the surface, and the land not being situated in the East, and those who reported not being known to them, they were confiding enough to take other people's word that everything was as stated,

with disastrous results. A proportion of the public will be discriminating enough to understand the difference between the many forest ventures of other parts of the world, and the settled pursuit with which we are so familiar in Ceylon and in the adjoining countries; and as *bona fide* plantation concerns will pay handsome dividends in the future as in the past, many victims will come to realize that it is not the rubber industry that was to blame, but the wild (-cat) industry."

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

THE DROUGHT—HOW IT HINDERS THE INDUSTRY.

THE topic of the moment here in balata, as well as in agricultural, circles is the continuance of the drought, which is still unbroken. The weather is remarkable and bodes no good for the balata industry, and prospects for the forthcoming season are gloomy. The drought has now continued for fully six months and the water supply even for the city of Georgetown is in such danger of running short that we have been put on "time run." The effect upon navigation to the distant timber grants can be very well imagined. The rivers are so low that expeditions have the greatest difficulty in reaching their destination. In some cases it has been found absolutely impossible, and while some men have remained stranded at Potaro mouth, others have returned to town. Expeditions which have safely reached the spot desired are in some respects in a worse position than those which have had to return, because it is not possible in this dry weather to do any bleeding and the men have to buy provisions at prices ruling on the grants, whereas those who have returned, while they are earning no money, are at least able to buy provisions at normal prices. The bleeding season will start late and may perhaps finish earlier. The output will be smaller, whilst in all probability the season will furnish a new crop of laborers' grievances. The men who are on the grants doing no work will contract a large indebtedness to their employers, which their earnings may or may not be sufficient to repay. The position is undoubtedly a most unfortunate one, coming as it does after a season of misfortunes.

The following extracts from the half yearly report of the East Demerara Water Supply Commissioners illustrate the severity of the drought: "The rainfall was reasonable during the month of July—12.22 inches—but from August 1 a most severe drought set in, and up to date still continues. During the five months, August to December, although the rain fell on 31 days, only on three occasions was it of any benefit to the conservancy, the rain that fell on the other 28 days having fallen in such small quantities as to be of little or no use.

THE EXPORT TAX ON BALATA—SHARP CONTROVERSY AROUND.

Much discussion has been aroused upon the subject of the export tax in view of the early approach of the annual session of the Legislature. At a recent meeting of the Balata Association it was resolved to appoint a committee to bring the matter before the government, after Mr. George Garnett had supplied the meeting with some interesting statistics. He said: "The tax of 2 cents per pound on balata was simply sprung on the Combined Court through Howell Jones. It was not properly considered and was allowed to pass because the government needed money. It was an exceedingly bad move as a matter of policy." In his opinion a tax on forest products should be somewhat similar to a tax on mineral products. By the 1910-1911 report of the Commissioner of Lands and Mines the gold exported was valued at \$962,303.78. The royalties and licenses, etc., under the heading of "Mining" were \$55,224.38, or equal to 5.7 per cent., but of this amount \$10,000 was ear-marked by the government for the purpose of making roads for the benefit of the industry, so that the real ratio was 4.80 per cent. He could not

see in the commissioner's report any statement as to the valuation of balata, but in the Blue Book it was mentioned as \$670,192.32. Of course, that was a very low valuation. On calculating the exports, 1,162,588 pounds, at one net price realizable at Georgetown, say, at 74 cents, the valuation would be \$860,315.12. The royalty of two cents would be \$23,251.76, and for licenses the figure would be \$22,470.72, or a total of \$47,722.48, or 5.55. The additional 2 cents export tax meant another \$23,251. He could not get at the ratio of taxation in connection with timber properties as the Commissioner only mentioned timber exports. Timber exports, however, were \$94,275.29, while royalty and licenses were \$9,384. The timber sold locally was not mentioned, and as the figures included all wood cuttings there could be no comparison. He thought that with all those figures they were perfectly justified in approaching the government with a view of getting the 2 cents per pound export duty on balata withdrawn, and he thought that if they did not see their way clear to withdraw it, it should be utilized for the benefit of the industry. They were not being fairly treated. The result of the additional 2 cents tax, or \$23,251, was to increase the ratio of taxation by nearly 4 per cent. and make it about 8.66 per cent. He did not think that was fair and certainly thought that the association should approach the government in the matter. Julius Conrad, a director of the British Guiana Balata Co., who is on a visit to the colony, said that the tax had caused some unrest. A committee was appointed, comprising J. B. Laing, manager of the British Guiana Bank, W. White (Consolidated Rubber and Balata Estates, Limited) and Henry Daley (Essequibo Rubber and Tobacco Estates, Limited) and as a result of its deliberations a strong petition asking for a reconsideration of the whole matter was submitted to the government.

This petition after enumerating many reasons for abolishing the export duty concluded as follows: "Your petitioners humbly pray that Your Excellency and the Honorable Court will abolish entirely the export tax placed on the balata industry last year, or failing this will order that the amount so realized will be utilized for purposes in connection with the industry. And your petitioners will as in duty bound ever pray."

In response, the Acting Governor, Hon. C. T. Cox, C.M.B., has sent the following minute to the government secretary: "When the Combined Court is in Committee of Ways and Means, I shall be glad if you will invite the committee to extend the export tax now levied on balata to rubber, timber and all produce of the colony, not necessarily in the same proportion as to value, but at a rate and in a manner which may be found most convenient." He then goes on at some length in the attempt to justify this suggestion.

This, however, does not remove the grievance, but appears to give consistency to the impost. That will not be done, however, until a general colonial export tax is imposed. It will be interesting to see whether the legislature will be swayed by notions of stout equity or expediency.

The newspapers are against the tax. The "Daily Argosy" said editorially: "There is no insidiousness or ambiguity about a direct tax. Nothing intervenes to distract attention from the weight of the burden it imposes. It drops heavily, and in the case of the balata tax it has struck where it has fallen. Whether the tax increases the cost of production, or amounts to a sheer abstraction from profits, the interests affected have been unable to pass it on to others. Hence the grievance and the petition for redress. The tax regarded at an *ad valorem* rate amounts to less than 2 per cent., which, compared to the rate levied on the necessities of life, is infinitesimal. This circumstance, however, has no bearing on the equity of the tax. It does not make it less unfair, and good arguments can be adduced in favor of taxing, for revenue purposes, commodities that enter largely into consumption. It is safe to assert that in the absence of this impost there would be a greater likelihood of capital coming

in for investment than there is today. On the other hand, capitalists would hardly be so unreasonable as to maintain that they should not contribute a fair share to the public revenues in exchange for the benefits they receive—first for those received from the use and occupation of lands belonging to the Crown and not to them; and, secondly, for those that are supposed to accrue in a well-ordered community, which provides an appreciable amount of security of property, to say nothing of the ordinary conveniences of a civilized country."

The "Daily Chronicle" said: "The decision of the Balata Association to appoint a committee to protest against the export tax on balata in order that the matter may be brought before the forthcoming annual session of the Combined Court is an eminently wise one, and it is to be hoped that those members of the court who have had some experience in the industry will make their voices heard when the subject comes up for discussion."

CUTTING OF RUBBER TREES A NOVEL PROSECUTION.

A somewhat novel prosecution was made recently at one of the country police courts when two East Indians of Plantation De Kinderen, a sugar estate, were charged with having had in their possession a quantity of rubber trees reasonably suspected to have been stolen. The men said that they did not know they were of any value, but an overseer of the estate said that one of the defendants knew very well, as he worked on the rubber cultivation on the estate. The magistrate told them that even in the forest people could not cut any trees as they liked, much less on cultivated land. They were fined \$15 each or a month's imprisonment.

POSSIBILITIES OF *HEVEA* IN THE COLONY.

Mr. Daley recently returned from a visit to the Essequibo Rubber and Tobacco Estates property on Liberty Island, and said that the *Heveas* were doing exceedingly well. Great progress was also being made at the Hills Estate, the property of the Balata Estates, Limited. He advised anybody "who was interested in *Hevea* cultivation to take a trip up to the Hills Estate if he wishes to see what *Hevea Brasiliensis* can do in this colony under proper management."

ELECTRICITY AND RUBBER GROWING.

THE idea of supplementing natural influences in agriculture is not new, but has in the past engaged the attention of scientists. It is, moreover, only appropriate that initial agricultural operations should benefit from the progress of modern science and ingenuity, in the same manner as has been the case with the later operations connected with the harvesting and preparation of cereals.

Dr. Franz Müller, of Frankfurt, has, among others, long been working for the promotion of the electro-chemical culture of plants, his plans having recently been described by Mr. Emil Lowitz in a lecture at the Royal Botanical Gardens, London. He stated that by means of an electrical apparatus it is possible to invigorate trees and plants, to pump food into them in order to promote their growth, to introduce insecticide for the exterminating of parasites, and to treat the soil.

In an experiment with a small rubber tree, before treating it with insecticide, Dr. Müller pumped plain water into it, with the object of finding the effect produced. After a few days, on tapping it, he found the latex flowed from it more copiously than before. Moreover, the parasites were exterminated, their death furnishing nutritive matter to the plant.

Rubber planters have to contend with difficulties, in the removal of which this new method may prove of great importance. Poor soil, arising from a deficiency of the needful chemical properties, or from its strength having been exhausted by previous crops, is among the troubles Dr. Müller's plan is meant to obviate.

Some Notes on Rubber Planting.

TWO MONTHS' RESULTS OF PROMINENT MALAY RUBBER COMPANIES.

THOUGH only applying to a relatively limited number of companies, the following returns dealing with the first two months of 1911 and 1912 will be found of interest:

TOTAL CROP FOR JANUARY AND FEBRUARY

	Acreage planted.	1911.	1912
	<i>Acres.</i>	<i>Pounds</i>	<i>Pounds</i>
Anglo-Malay	3,521	115,910	133,292
Pataling	1,422	49,931	65,818
London Asiatic	4,283	46,343	83,921
Golden Hope	850	12,477	22,554
Selaba	1,846	23,039	45,875
Bikam	700	12,083	21,821

Aggregate 12,622 259,783 373,281

By this showing, 1912 seems to be starting favorably for the above prominent companies.

SCOTTISH MALAY RUBBER CO., LIMITED.

Out of the 2,440 acres owned by this company in Selangor, Federated Malay States, 1,403 have been gradually planted with rubber since 1905. That the earlier plantings are now reaching maturity is shown by the recent output of rubber

	<i>Pounds</i>
1910, Twelve months.....	31,002
1911, Twelve months.....	102,917
1911, January	5,237
1912, January	9,519
1911, February	10,126
1912, February	17,088

These figures seem to augur well for this year's prospects

RIVERSIDE (SELANGOR) RUBBER CO., LIMITED.

The 1,455 acres under cultivation of this company's total holdings of 2,241 acres were planted to the extent of 437 in 1906-7, the latter area being at present more or less near the bearing stage. Tapping commenced about the end of 1910, the quantity harvested in February, 1911, being 5,700 pounds. The figure of 20,361 pounds recorded for February, 1912, shows that this concern is making progress.

UNITED SERDANG (SUMATRA) RUBBER PLANTATIONS, LIMITED.

Of the 11,282 acres owned by this company, 8,161 acres are planted; 60 per cent of the latter acreage since 1906 and 1907. The quantity harvested during the year ending August 31, 1911, was 218,530 pounds, while that recorded for the six months ended February 29, 1912, was 212,972 pounds, the output having thus been almost doubled. The estimate of 433,000 pounds for the year ending August 31, 1912, seems likely to prove correct.

VALLAMBROSA RUBBER COMPANY, LIMITED.

The production of this company, owning 3,429 acres in Selangor, Federated Malay States, has not materially varied during the last three years. Figures published show:

	<i>Pounds.</i>
Twelve months to March 31, 1910.....	371,316
Twelve months to March 31, 1911.....	411,476
Eleven months to February 29, 1912.....	393,950

DR. HUBER IN THE EAST.

A small but distinguished party has been visiting the East, composed of Dr. Jacques Huber, the well-known rubber authority and director of the Goeldi Museum and Botanical Garden at Pará; Mr. C. E. Akers, representing British capitalists, with Mr. A. Ujenast and Mr. T. Lugones, both long connected with the Bolivian rubber industry. After visiting Ceylon, they continued their journey to Malaya and the Dutch East Indies, from

which points they expect to return to Ceylon early in May. They have been looking rather into the commercial than the scientific aspect of the rubber industry.

DR. WILLIS' CHANGE FROM CEYLON TO BRAZIL.

In an editorial under the heading of "Ceylon's Loss, Brazil's Gain" the "Ceylon Observer" pays an appropriate tribute to the services rendered by Dr. J. C. Willis to the island as Director of the Royal Botanic Gardens and in other responsible positions. These services will now, as already noted, be rendered to the Republic of Brazil as Botanical Director, Agricultural Adviser and Planting Expert at the Rio de Janeiro Gardens.

In an interview before leaving Ceylon Dr. Willis said:

"As far as soil and climate are concerned, my general impression is that rubber in Ceylon does not do very well for the first six or seven years, but after that it does very much better. There is no doubt that the Malay States can beat us for six or seven, possibly ten, years, but I am quite convinced that, after ten years, Ceylon rubber grows as well as any."

"With the high price of rubber, naturally it pays to have the yield coming in when the trees are young, but I am pretty sure that after about ten years the trees will begin to catch up with those in the Malay States. How long they will take to catch up, of course, I cannot say."

THE FUTURE OF SUMATRA.

In European expert opinion Sumatra has a bright future, the best estates there being considered very good indeed. Sumatra has the advantage of better soil than in the average of the Straits possessions; the properties there being, moreover, generally well organized. Authorities believe that Sumatra will be heard from a good deal more as to rubber.

MALAYAN VS. CEYLON COOLY IMMIGRATION.

Malayan figures indicate that the superior attractions of the Federated Malay States have led to a larger immigration of coolies there than to Ceylon. Free passage is said to aid in the result attained, while in various points Malayan planters endeavor to improve the condition of their workers.

BORNEO GAINING BY RUBBER.

In his speech at the British North Borneo dinner, recently held in London, Sir J. West Ridgeway, the chairman, said that the shareholders of the company had been acting the part of empire makers and were now reaping the results.

"The charter," he added, "involves great responsibilities. The policy is one of vigorous development. The company has done its best and, thanks to rubber and the railway, we are now on velvet."

BRITISH ESTIMATE OF BRAZILIAN COSTS.

ACCORDING to a cable communication from London to the "Times of Ceylon," Mr. Jesser Davis, who went to Brazil to report on the estates of the Diamantino Rubber Plantations, Limited, is not impressed with the prospects, and stigmatizes the government subsidy as a mirage. He estimates that the cost of the rubber landed in London would be 2s. 5d. = (58 cents) per pound.

PHILIP FRANCIS RYAN.

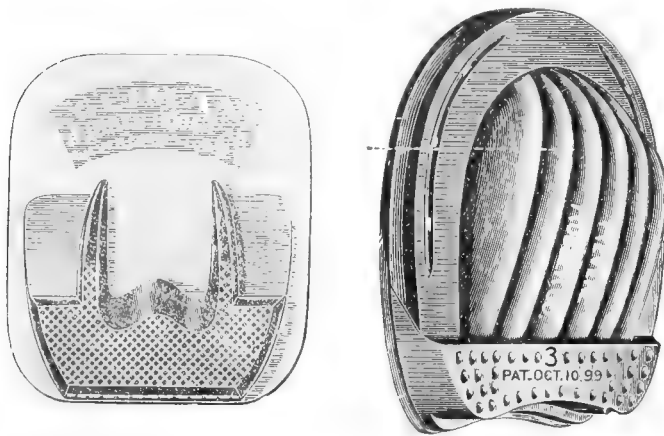
Much regret has been expressed by the Indian press for the untimely death, through a bathing fatality, on December 31 last, of Mr. Philip F. Ryan, acting editor of the "Ceylon Observer." He had previously been assistant editor of the Calcutta "Englishman" and editor of the Madras "Times" and of the Lucknow "Daily Telegraph." His career gave promise of a bright future in his profession.

Rubber Hoof Pads for Horses.

WHETHER you call them hoof pads, horseshoe pads, rubber horseshoes, or any other name by which they are known to the trade, is immaterial; they all refer to a comparatively new product that has grown to be a highly important factor in general commerce and in the rubber trade in particular. The first pad put into practical use was known as the "Dempsey Pad," called after the name of its inventor, which appeared twenty-five years ago. It was what is known to the public today as a canvas back bar pad.

In 1891 Michael Hallanan, of New York, invented and patented a full sized hoof pad, the merits of which were so pronounced that it quickly gained a place for itself with horse owners and veterinarians. The same gentleman soon afterward brought out another pad, serving the same purpose, which was fortified with a firm and durable base of leather.

Of different styles and patterns, it might be said, there is almost no end, each manufacturer turning out all the way from twelve to twenty. It is safe to say, however, that there are not far from 100 distinct patterns of rubber hoof pads in the market.



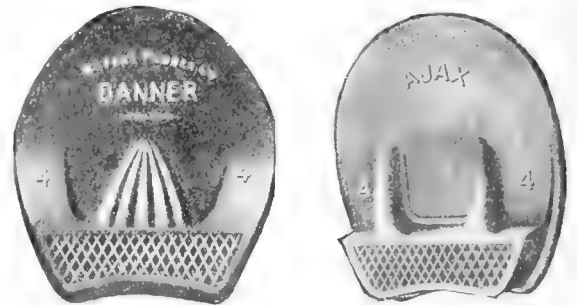
It was only natural, when Mr. Hallanan's idea was seen to be a good one, that others should come into the field. Though its beginning was on a very small scale, this industry has advanced by rapid strides until it has reached great magnitude. The proportion of horses in New York City that are shod with rubber hoof pads is estimated at fifty per cent. Other cities show a smaller percentage; singularly enough Boston, with only 20 per cent. of its horses rubber shod, being at the foot of the list among large American cities.

Of twenty cab drivers on Broadway, New York, interviewed, all of them answered to the effect that their horses could not get along without pads. The New York fire department horses in the asphalt districts are padded, and of the 2,000 horses employed in the police service, those padded number 1,500. On the other hand, only a very small percentage of the 2,000 horses in the Street Cleaning Department are supplied with rubber pads—probably not over 2 per cent., but that number is increasing. The veterinarians of the above mentioned city departments were impressed with the necessity of the rubber pad. One of them said that he would have all the horses of his department padded if it were not for the fact that the pads were so high priced.

All horse hoof pads excepting the Air Cushion pad can be divided into two classes; the Full Front and the Bar pad. The Air Cushion pad invented by W. J. Kent is in a class by itself.

In the Bar pad, a solid bar of rubber runs across the heel and is attached to a piece of leather which conforms to the shape of the horse's foot. The Full Front pad has the bar, and, in addition

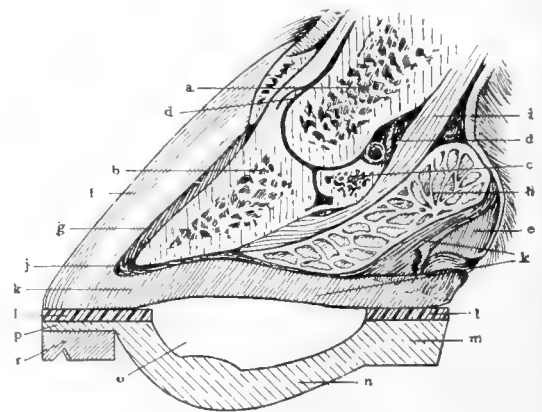
thereto, a rubber ridge running inside and filling the rim of the three-quarter shoe. The Air Cushion pad has a hollow cavity next to the foot, which forms a bulb on the ground, and thus takes all the pressure from the sole of the foot; while owing



to the amount of rubber used it has a non-slipping quality which no other pad has. It is made of very high class rubber, and has a leather back. Some cheaper pads, however, are made, having friction duck as a base. The Frog pad is practically out of use, not more than one pair being used to 5,000 of the other kinds, where three-quarter shoes are used in adjusting them to the foot.

The accompanying cut, which shows the cross section of a hoof and Air Cushion pad, gives not only an accurate idea of the anatomy of the horse's foot, but shows how admirably the Air Cushion pad does the work for which it is designed.

The purposes of the hoof pad are multifarious, the most important being to prevent injury to the horse as the result of the concussion that must necessarily ensue when the hoof strikes upon hard pavement. The Air Cushion pad absolutely prevents this, and while other pads may not entirely prevent it, they reduce it



CROSS SECTION OF PAD AND HOOF.

- | | |
|---|--|
| a—Coronet bone. | k—Horny sole. |
| b—Coffin bone. | k ₁ —Horny frog. |
| c—Navicular bone. | l—Leather sole. |
| d—Capsular ligament coffin bone. | m—Rubber cushion for heel and quarters. |
| e—Plantar cushion forming bulb of heel. | n—Rubber elastic bulb. |
| f—Front wall of hoof. | o—Air space. |
| g—Sensitive laminae. | p—Rubber flange under shoe. |
| h—Plantar cushion. | q—Space for entrance and expulsion of air. |
| i—Perforans tendon. | r—Iron tip shoe. |
| j—Sensitive sole. | |

to a minimum; and besides this, they are both a cure and preventive of corns, contraction of the hoof, quarter cracks, or sand cracks; prevent slipping, and make it next to impossible for a horse to pick up nails or stones, or cut his feet with glass. The rubber pad also enables a horse to stop and start quicker, gives him a stronger foothold, and gives the driver a firmer control.

It is these admirable qualities that so highly commend rubber hoof pads to horse owners, farriers and humanitarians. An idea of the extent of their popularity may be obtained from the fact that in 1911 between 600,000 and 1,000,000 pairs of hoof pads were used in the United States.

Naturally, the rubber hoof pads are best adapted for use upon



POWER'S SHOE.



WALPOLE.

the paved streets of cities, just as it is there that they are most needed, and it should be a matter of but a short time when practically all horses in the larger cities will be wearing them. They are made in all sizes to fit any standard make of iron horseshoes, no special iron shoes being required to be worn with the rubber attachment. The pads are sometimes backed with sole leather, sometimes with heavy canvas of special weave, and sometimes with a combination of the two.

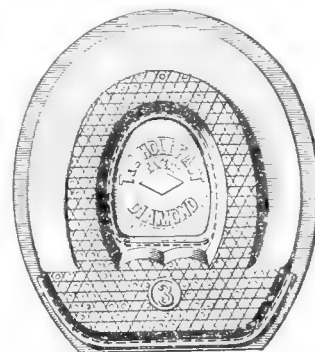
As an invention the rubber hoof pad is classed as one of the most humane and beneficent of mechanical devices. It has the unqualified endorsement of such institutions as the American Society for the Prevention of Cruelty to Animals, the Veterinary

Medical Association of New York, the Veterinary College of the University of Pennsylvania, and many others.

None but the best grade of materials is used in the manufacture of these pads; in fact, to use inferior goods would be an aggravation and would defeat the purpose of the pad itself. In construction the rubber is affixed to the leather or canvas base with a strong, waterproof cement, and is then stitched through and through in order to preclude the possibility of blistering or pulling apart. The pads are a little larger than the horse's foot across the quarters, and form a part of the shoe. In shoeing, the farrier fits the foot and the pad with a three-quarter steel shoe of

uniform thickness, using a little tar and oakum in the cleft of the frog to promote a healthy growth of the foot. A set of well fitted and correctly adjusted pads will enable a horse to give better service, and make him last much longer on the hard and slippery asphalt and wood pavements than under the old methods, while on stone pavements his endurance is said to be increased by from three to five years.

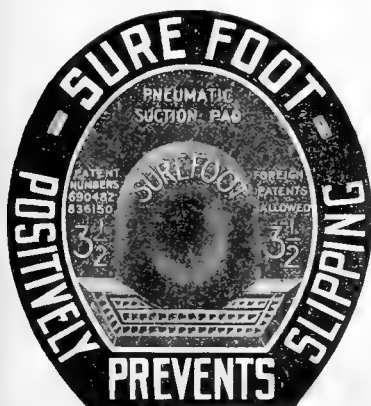
Horse owners as a class are under the delusion that a horse shod on his front feet can overcome all difficulty from slipping, but this is not the case. There is just as much necessity for the



horse to be rubber shod on his hind feet to save the hind feet and quarters from the strain of slipping, and to give him greater propelling power. It might be added in closing that the automobile has practically wiped out the coach horse, and has played havoc of late with the coaching industry.

NEW TESTS FOR INSULATED WIRE.

The revised set of electrical regulations issued in 1911 by the Electrical Department of New York city are noticeably more severe than the old regulations. These new rules provide that the insulation shall be of rubber or other homogeneous compound which has been approved, and specifies a definite thickness for each size of wire. The elasticity of the insulating covering is tested as follows: The wire must be capable, after the removal of the braiding, of being wrapped several times around a cylinder of a given size without injury to the insulation, the size of the cylinder being such that while most new wires can probably stand the test, old wires, which when of inferior quality tend to grow hard and brittle, could hardly pass this test unless the insulation is of a very good quality. As a protection against too soft an insulation, the rules stipulate certain tests, among which is the following: The braiding is carefully removed from a portion of the sample (a short length of about 20 inches being used) and the copper wire is connected with one terminal of an electric circuit, of which a testing tool forms the other terminal. The portion of the sample from which the braiding has been removed is placed on a flat surface and the tool edge, which is placed across the sample, is pressed down on to the insulating cover with a pressure of 5 pounds, which is maintained for about a quarter of an hour. The electric current, which must be at least 100 volts alternating is then turned on and the tool edge must not sink far enough through the insulation to touch the copper wire and complete the electric circuit—a pretty hard test for a small wire but one to which the best manufacturers have agreed.



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NEW TRADE PUBLICATIONS.

THE Boston Woven Hose and Rubber Co., Cambridge, Massachusetts, has just issued an exceedingly handsome series of three catalogues, one called the "Belt Book," the second, "Mats and Matting Book," and the third, "Fruit Jar-ring Book." Aside from the information, on the various topics treated, to be had in these three books, they are interesting as showing the development which the art of catalogue making has reached in this country. All three books are printed in black and green on tinted paper of superior quality. The "Belt Book," which contains 48 pages, gives a good many half-tone illustrations of the various belts manufactured by the company. The other two books, in addition to illustrations of the goods, contain many artistic designs that serve not only to give the books a fine decorative effect, but to show various ways in which the goods may be used. In the jar-ring book, for instance, the background on many pages consists of a subdued reproduction in delicate tints of the various fruits, in the preservation of which rings are used, as, for instance, grape vines with large clusters of luscious grapes, berry bushes bending with fruit, and orange trees laden with oranges. They are three very creditable productions.

The Springfield Rubber Co., Springfield, Massachusetts, has issued its 1912 catalogue. It contains 48 pages of text and half-tone illustrations, printed on a fine quality of paper, with a cover of plain, but pleasing, decorative effect.

The B. F. Goodrich Co., Akron, Ohio, is sending out four little six-page folders, descriptive of some of its products. One describes the Goodrich telephone receiver cushion. This is a disc of soft, pliable rubber which fits any standard telephone receiver. It conforms closely to the ear, and excludes other sounds—a very convenient device in a noisy office.

A second folder, entitled, "You Can Hear So Distinctly," calls further attention to the desirability of this telephone cushion. It has two illustrations—one of a man trying to hear over the telephone with the noises in the street evidently rendering it impossible; while the other picture shows the same man after he has secured the Goodrich cushion listening at the telephone with obvious satisfaction.

The third folder describes the Goodrich motorcycle tires, and shows the advantage of using a large-size tire on a motorcycle, if the rider wants comfort and long wear. The fourth folder describes the Goodrich valve discs, which are made of a new rubber composition, designed to overcome the objections that have heretofore limited the use of composition discs.

A booklet illustrating the important features of its Quick-Detachable Demountable Rim has just been issued by the Firestone Tire and Rubber Co., Akron, Ohio. This booklet calls particular attention to the fact that the base of the Firestone rim is unbroken, either across the rim or around it. Also to the fact that inner tubes can be changed when the rim is either on or off the wheel.

The Peerless Rubber Manufacturing Co.'s catalog No. 100 is a fine example of rubber catalog making at its best. It is a handsome volume of over 200 pages, printed in red and black, on a superior quality of paper, with a stiff leatherette cover, printed in red on black. It describes minutely and illustrates generously a great variety of the products of this company. At the beginning of the catalog is a table of contents that makes it possible to refer immediately to any desired page. Fifty-five pages are devoted to packing and gaskets, and a great many kinds of packing, including the company's famous "Rainbow," are shown in these pages; 30 pages are given to belting; 46 to hose, and 24 to matting and rubber tiling, in which are included 7 pages consisting of full-page cuts, very handsomely printed in colors, showing interiors of churches, cafes, banks and private resi-

dences. These pages are extremely effective. There are other full-page cuts at the beginning of the book showing the interior of various departments of the factory that are also interesting, while the first illustration in the catalog, being a double-page view in colors of the Peerless plant at New Durham, New Jersey, gives an excellent idea of the size of this institution.

The United States Rubber Co. has just issued a handsome little volume of 64 pages, size 7 x 9, entitled "Advertising Service," displaying a great number of cuts, which the company is prepared to furnish the jobber for his own use or for the use of his customers. This catalog shows a complete line of rubber boots and shoes in the form of large-sized handsome half-tones, made direct from the goods. The boot cuts are about 4 inches high, and the shoe cuts over 3 inches long, a size that makes it possible to bring out all the details. In addition to the regular line of footwear there are several pages devoted to tennis and other sporting shoes, and to "Combination" boots. There are further pages showing the trade marks controlled by the company.

There are eleven fine cuts of various factories whose product is sold by the United States Rubber Co., and then follow a number of pages of half tone and line cuts for general magazine and newspaper advertising. An interesting feature and one entirely new for this company's advertising, is the illustration of various colored slides, to be used in moving-picture theaters, which the company is prepared to furnish to dealers who are interested in this very effective line of work.

The Banigan Rubber Co., Baltimore, Maryland, has sent out its 1912 illustrated catalog, illustrating and describing a complete line of Banigan goods, and giving net prices to retailers.

The March number of the Beacon Falls publication, entitled "R-U-B-B-E-R," is, as usual, full of entertaining reading and rubber information. As a frontispiece it has an illustration taken from "Life," showing a small boy who has broken through the ice—his head barely showing above the water—and his sister on the bank upbraiding him as follows: "Now see what you get for coming out without your rubbers."

The Whitall Tatum Co., New York, price list for 1912 is a revelation of the vast variety of sundries made of rubber for use in the sick room. The entire catalogue contains 206 pages. The first 72 are devoted to glassware; of the remaining 134 fully half are filled in describing and illustrating rubber goods, including not only those usually found in the drug store, but others that are used in the hospital and operating room, and rarely seen in the ordinary drug store collection. There is every kind of soft rubber articles, such as water and ice bags, syringes, atomizers, douche apparatus, cushions; besides combs, brushes and other hard rubber goods.

"Grenier's Rubber Annual for 1911," a quarto publication of 50 pages, has just been received from the publishers. Charles Grenier & Sons, Kuala Lumpur, Federated Malay States. That the Middle East is not only able to grow rubber, but can tell its story in attractive form is demonstrated by the second issue of Grenier's Rubber Annual, which in the character of both text and illustrations shows a notable advance on that of 1910. Considerable interest attaches to the views which bring the reader into close touch with the conditions under which rubber is cultivated and prepared for shipment.

While the papers dealing with past and present features of the rubber industry (such as that by Mr. H. Hamel Smith on "Labor at Home and in the Tropics") are of much value as illustrating the history of rubber cultivation, those by Mr. S. M. Gluckstern and Mr. A. E. Clabburn Detrez deal with the future from various standpoints, and are therefore of assistance in considering the crucial question of the prospect of the market. The annual is evidently the result of much thought and effort on the part of its authors and compilers.

The Editor's Book Table.

BUSINESS. (BEING VOLUME 4 OF A SERIES OF 10 BOOKS Known as the Young Folks Library-Vocations.) Edited by Andrew Carnegie, L.L.D. Boston: Hall & Locke Co. 1911. [Cloth. 8vo. Pp. 401.]

THIS book is intended for young people, particularly for boys who are approaching the great question of deciding their future career. It contains about 15 short articles on business principles in general, written either by living authorities, such, for instance, as Andrew Carnegie, or taken from the writings of such past worthies as Horace Greeley and T. T. Munger. In addition there are about 15 articles descriptive of great industries, written in every case by a recognized authority in that particular industry. The story of the rubber industry is contributed by Henry C. Pearson. This contribution is interesting as an illustration of the fact that much valuable information may be imparted to the youthful mind in such a way that it will be absorbed with avidity and retained permanently.

This rubber contribution is in the form of a story—and a most entertaining story—in two short chapters. The first chapter opens at the *seringal*, or rubber camp, in the Brazilian forests. A jaguar has pursued one of the men almost to the camp; and the story begins with the exciting incident of bringing the beast to book. A great deal of crude rubber information is given in the conversation which these *seringueiros* hold at night while resting from their labors. The picture of rubber gathering—collecting the latex and smoking it over the palm-nut fires—with the dense jungle as a background, is one that is not likely to fade from a boy's memory for many a year.

The second chapter is laid in a rubber factory in the United States. The description of the manufacture of rubber is also put into narrative form. A sixteen-year-old boy expresses his disinclination for further school, and his father puts him in a rubber mill. There by his quick-wittedness he saves the life of a fellow workman who has been caught in the gearing and is rapidly being drawn towards the massive cylinders of a grinding machine. This incident calls the attention of the president of the company to the young man, and he is sufficiently interested in him to explain the different channels in the organization of the mill through which he can rise to a position of importance. This sort of information is exactly what the book is published to convey, and in this particular instance it is conveyed in such a manner that a boy, started on this story, would not drop it, even to go to a ball game.

MISSOURI BOTANICAL GARDEN TWENTY-SECOND ANNUAL Report. St. Louis, Missouri. The Board of Trustees. [Cloth. 8vo. Pp. 103.]

That botanical research has attained a high grade of development in Missouri is demonstrated by the Twenty-second Annual Report, dealing with the year 1911 of the Missouri Botanical Garden and the School of Botany connected therewith. In his detailed report the director records a number of interesting facts illustrating the work done, while valuable papers are contributed by prominent botanists on "Illustrated Studies of the Genus *Opuntia*," "The Agaves of Lower California," "Crataegus in Missouri," and other subjects.

While not dealing specially with rubber cultivation, this volume with its numerous artistic illustrations, presents many features of interest to rubber scientists.

Since the issue of this report it has acquired further interest from the resignation on February 19 of Dr. William Trelease, one of the best-known botanists of America, who was director during more than twenty-two years. It is gratifying, however, to note that Dr. Trelease's withdrawal is not due to any diminished enthusiasm for botanical work, but from a wish to pursue his scientific researches at the gardens without interrup-

tion from administrative duties. The Missouri Botanical Gardens are said to be exceeded in size only by the Kew Gardens, near London.

INDIA-RUBBER JOURNAL DIARY AND YEAR BOOK, 1912. MacLaren & Sons, Limited, London, England. [Cloth. 4to. 103 pp. besides 122 pages of diary.]

To the busy man, desirous of keeping his memoranda of past and future transactions in compact and accessible form, this well-arranged diary, interleaved with blotting paper, offers a convenient method of attaining that result. At the same time its introductory text is full of useful information of a statistical and business character, with special reference to British rubber imports and exports.

WHITE'S MANUAL FOR NEW YORK BUSINESS CORPORATIONS. By Hon. Frank White. New York: Lawyers' Co-operative Publishing Co. [Buckram. 8vo. Pp. 470. Price, \$2.50.]

To the many business men interested in corporations (and thereby in corporation law) the recently published eighth edition of the above standard compendium will prove a valuable guide as to New York legislation. While prior to 1901 less than 1,900 new companies were annually incorporated within that State, the number has now (under the more liberal laws in force since that time), increased to more than 8,000 a year. The popularity of New York incorporation renders it doubly advantageous to have at hand a manual such as the above, embodying what the business man needs to know of New York corporation law and its various applications.

RUBBER SHARE HAND-BOOK. LONDON: THE FINANCIER AND Bullionist, Ltd. 1912. [Cloth. 8vo. Pp. 884. Price, 2s. 6d. net.]

Appearing a month earlier than last year, this valuable hand-book has increased in size from 636 to 884 pages; this expansion being principally due to the addition of details as to 140 "Rupee and Dollar" companies, which form a new and valuable feature of the work. The recent visit to the East of Mr. E. L. Killick, has proved of material benefit to the completeness of the hand-book. Another interesting feature consists of a number of full-page illustrations of rubber gathering and kindred subjects. The compilers of the work are to be congratulated on its completeness.

WHY TIRE MAKERS SEND OUT GOOD ADVICE.

SOME people have wondered why manufacturers of tires are so industrious in sending their consumers instructions for the proper use and preservation of tires, the opinion being expressed that the quicker the tires wear out, the more business the manufacturers will have, and consequently, it is not to their interest to have tires last too long. But a second thought would prove to anyone that while the manufacturer might be quite willing that other tires should wear out rapidly, he would naturally want his own to make a great record for service, so that when automobilists are discussing tires, the users of his brand will sing their praises for service and endurance.

This distribution of advice on tire use is the best sort of advertising, and it is natural that if one manufacturer begins to instruct his customers as to the best way of getting service, other manufacturers will not care to be left behind. As a matter of fact, they probably all gain by instructing the consumer as to the proper use of his tire, for the more service the consumer gets out of his tire (and this is equally true of his car) and the less expense it is to him to own and operate a car, the greater will be the number of people who will join the automobile ranks.

Obituary Record.

A PERSONAL ESTIMATE OF HENRY C. MORSE.

MR. MORSE was almost the last of a brilliant coterie of typical New England business men, whose interests centered about the rubber trade. Although competitors oftentimes, they knew each other intimately, lunched together at the Trade Club, attended meetings of "Rubber Manufacturers Mutual," were cordial supporters of the Rubber Club, and addressed each other by their first names in the most democratic and intimate fashion. They knew each other's strength and weakness to the last detail. They fought out points of business ethics with the give and take of strangers. Then in time of stress turned to and helped each other with money, advice and influence. With it all a strong current of loyalty to each other, and a desire for the good of the trade at large, were ever present.

Of this circle not the least interesting personality was Henry C. Morse. He was a small man physically, compactly built, alert, always genial, and at his best surcharged with vitality. Perhaps his most remarkable characteristic was that of being able to bear up under long-continued adversity and to present always a smiling face to friend, foe and circumstance. That he would not be ultimately successful, or that his policies would fail, did not seem to occur to him; and the history of the company of which he was for so many years the active head amply justified him in his faith. It was under his guidance, and while he was still at the helm, that it shook off its burden of indebtedness and became at once a great success and a monument to his ability. Perhaps it was the strain of those long years of constant and anxious endeavor that, once success was assured, dimmed the brilliant intellect, fettered the cool judgment and shadowed the keen memory.

The last years of his life, passed in the companionship of a devoted wife, with everything that wealth could afford, were by no means unhappy. Indeed, just the reverse was true. To the last he was friendly, contented and free from pain.

Those who knew him best, however, love to remember him as he sat in his Franklin street office, his desk clear of papers, no matter how great the press of business, fully in touch with every detail, and yet unhurried, with ample time for friendly jest, anecdote or business conference, and with it all ready and even eager to help any and all who came to him for advice or comfort.

A strong man was Henry C. Morse and a successful one. He jested over his own adversities, but those of others received his most serious and sympathetic attention. The memory of the man will long be preserved by those who knew him, and, in the silent watches, the kindly, friendly, helpful presence will often be recalled.

THOMAS MARTIN.

When the funeral of the late Thomas Martin was held, on the afternoon of March 10, in the Horace Memorial Free Baptist Church in Chelsea, Massachusetts, the great company of people who attended the services, filling the church and overflowing into the streets, showed by its diversified character the many-sided interests that filled Mr. Martin's life. There were members of Congress, mayors of cities, bankers, manufacturers, and hundreds of mill operatives.

Mr. Martin died, after an illness extending over seven or eight months, on the evening of March 7, at his home in Winchester, Massachusetts, whither he moved, from his former home in Chelsea, about five years ago. For forty years he had been closely identified with the business, civic, social and religious life of Chelsea.

He was born in Countesthorpe, Leicestershire, England, August 2, 1838. At the age of 12 he was apprenticed to a manufacturer of elastic fabric. He served an apprenticeship for seven years;

and in 1865, at the age of 23, he was engaged by an American syndicate to come to this country and take charge of the only mill in the United States at that time making elastic fabrics, which was situated at Easthampton, Massachusetts. Three years later he went to Chelsea, and became superintendent of the mill of the Boston Fabric Co., now known as the Revere Rubber Co. He remained with that corporation nine years, and in 1874, being joined by his brother William T., who had just come from England, he opened an elastic fabric mill in Chelsea, under the name of T. Martin & Brother Manufacturing Co. The business extended until, at the time of Mr. Martin's death, the company had five mills in Chelsea and two in Lowell, employing, all told, 600 hands.

His manufacturing business, however, did not engross his entire attention. A quarter of a century ago, he founded the Provident Co-operative Bank in Chelsea and was president until his death. For seven years he was president of the First National Bank of Chelsea and a trustee of the Chelsea Savings Bank, vice-president of the Frost Hospital and a trustee of Bates College at Lewiston, Maine.

In politics he was a Republican, and was elected repeatedly to positions in the Chelsea Common Council, and the Board of Aldermen, and also served a term in the Legislature. He was keenly interested in the "No license" cause and contributed generously to it. He was exceedingly active in religious work. The Horace Memorial, now used as a place of worship by the Chelsea Free Baptists, was erected by Mr. Martin in memory of his eldest son, who died in his twenty-first year in 1885. Mr. Martin is survived by his widow, a son, Bertram T., of Chelsea, and two daughters, Mrs. Albert W. Fitz and Mrs. Ethel S. Brierley, both of London.

MRS. J. VAN DUSSEN REED.

Mrs. J. Van Dussen Reed died in Paris, France, on March 14, 1912.

Soon after the death of her husband, the late John Van Dussen Reed, who died in 1892, Mrs. Reed was elected to succeed Mr. Reed as president of the Eureka Fire Hose Co., and remained in that position as the nominal head of that company until 1906, the actual management of the business being vested in B. L. Stowe as vice-president, and George A. Wies, as treasurer.

Mrs. Reed (Mary L. Mitchell) was born in Union Square, New York, and was a daughter of the late Samuel L. Mitchell, who during his life was at the head of the Savannah Steamship Co. Mr. Mitchell died in 1873, leaving as his survivors a widow, son and three daughters, all of whom are now deceased, a sister's death having preceded Mrs. Reed's by but a few weeks. Two married daughters survive Mrs. Reed.

P. M. S. BRODIE.

News is received of the death of P. M. S. Brodie, manager of the works of the India Rubber, Gutta Percha and Telegraph Works Co., Limited, Silvertown, London, England, who had filled that position for over 11 years, having, however, for many years previous been connected with the company in minor positions. He started as assistant at the Sheffield branch, and by reason of his conscientious service worked his way rapidly up to the important office which he held at the time of his death. He was a man of fine business capacity and of a genial, attractive personality.

FREDERICK H. NAZRO.

Frederick H. Nazro, at one time the best known auctioneer in the shoe trade, died suddenly at Palm Beach, March 5, aged 66 years. Mr. Nazro was born in Boston, the son of a prosperous

merchant. He was educated in the public schools, and began his business life as entry clerk for J. H. Lester & Co., shoe auctioneers on Pearl street. Colonel Lester was the auctioneer of the concern, which held regular sales once a week. One day

of that company. Mr. Francis' management of the Hartford company was extremely successful and gave him a considerable reputation as a manufacturer.

In 1892 Mr. Francis sold out his interest in that company, and



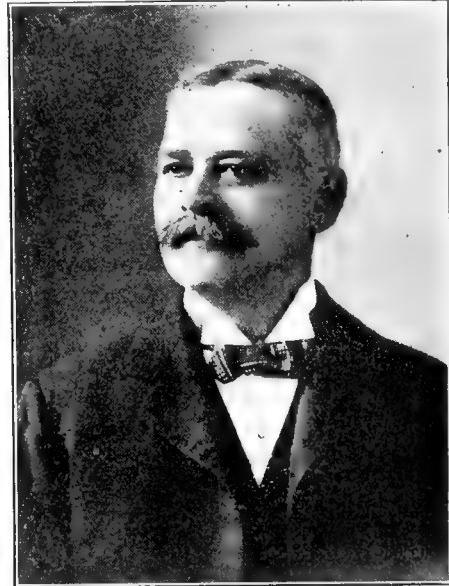
FREDERICK H. NAZRO.

when Lester could not speak aloud, an outside auctioneer was called in. Young Nazro claimed he could do better than the stranger, and Lester allowed him to officiate at one sale. He did so well that the Colonel never again auctioneered goods in his own store. The firm became Lester, Johnson & Moody and on the death of Lester in 1875, it was changed to Johnson & Moody, with Mr. Nazro as partner. The specialty of the firm was boots and shoes, and for many years the excess stocks of rubber footwear manufacturers were consigned to them, and the annual rubber sale was an event in the trade. Mr. Nazro was the auctioneer at all these sales. He had a record of nearly 6,000 sales in three consecutive days, and in one day he made 2,200 sales in eleven hours. He knew personally every wholesale shoe buyer in the country and had an intimate acquaintance with the selling agents of the rubber shoe manufacturers. He retired from active business a few years ago.

Mr. Nazro was at one time president of the Boston Boot and Shoe Club. He was a past president of the Old School-Boys Association of Boston. He was a member of the South Congregational Church and a personal friend and co-worker with the late Rev. Edward Everett Hale, in his many philanthropies. He left a widow.

HENRY HARRIS FRANCIS.

Henry Harris Francis, formerly president of the Hartford Rubber Works Co., and later president of the Omo Manufacturing Co., of Middletown, Connecticut, died at his home in that city on Saturday, March 9, at the age of 64. He had been in poor health for the last four years, during which time he had taken but little part in active work. He was born in Wethersfield, Connecticut, October 12, 1847, son of Captain John H. Francis and Evelyn Harris Francis. At the age of 15 he entered the employ of Ezra Clark & Co., of Hartford, dealers in iron and steel, where he remained fifteen years. He left this firm to become secretary of the Union Knife Co., of Naugatuck, in which company he had bought an interest. Ten years later, in 1887, after the destruction of the plant of the Union Knife Co. by fire, he entered the employ of the Hartford Rubber Works Co. There he was quickly advanced to the offices of secretary and general manager, and after the death of John W. Gray, to the presidency



HENRY HARRIS FRANCIS.

in 1893, with others, organized the Middlesex Rubber Works Co.—later re-named the Omo Manufacturing Co.—at Middletown, and was its first president. He disposed of his interest and retired from the company in 1896. In 1897 the Omo Manufacturing Co. went into the hands of a receiver; but in February, 1898, it was reorganized with Mr. Francis as general manager. Later he became secretary and treasurer as well, and in 1901 he was elected president, treasurer and general manager. After its reorganization the Omo Manufacturing Co. became one of Middletown's most successful industries.

Mr. Francis was deeply interested in the welfare of the community in which he lived, and was ready to help in all worthy causes. He was an ardent Republican, a Free Mason and an Odd Fellow in good and regular standing, and was a thoroughly companionable man.

ALBERT FISCHER LEFT NEARLY \$400,000.

An inventory of the estate of Albert Fischer, former president St. Paul Rubber Co., St. Paul, Minnesota, who died December 12 last, was filed for probate March 1. The estate is valued at \$391,108.99. The largest items are \$262,553.99 in cash and the Hibernian Hall property, valued at \$125,000. The balance of the estate is personal effects. Forrest L. Fischer is administrator and the heirs are a sister, two nieces and two nephews.

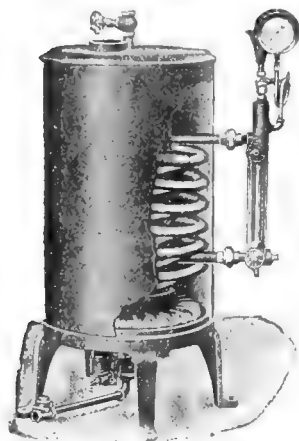
AS TO THE USE OF CHAINS ON TIRES.

It is obvious that a chain on the tire may under certain conditions be a great help, if not an actual necessity, but it is equally obvious that it is of no benefit to the tire itself under any conditions, and under many conditions it is a distinct injury, as, for instance, when it is used on paved streets, where the chain, not being able to sink into the pavement, has to sink into the tire. The B. F. Goodrich Co. has issued a special circular on the use of chains, giving illustrations of tires that have been badly abused by this device. Among other salutary pieces of advice, it says that the chain should not be fastened to the spokes, as that brings the wear at regular intervals and always on the same spot. Auto owners addicted to the use of the chain, can probably save themselves some money by perusing this circular.

RUBBER MACHINERY.

THE COIL STEAM GENERATOR.

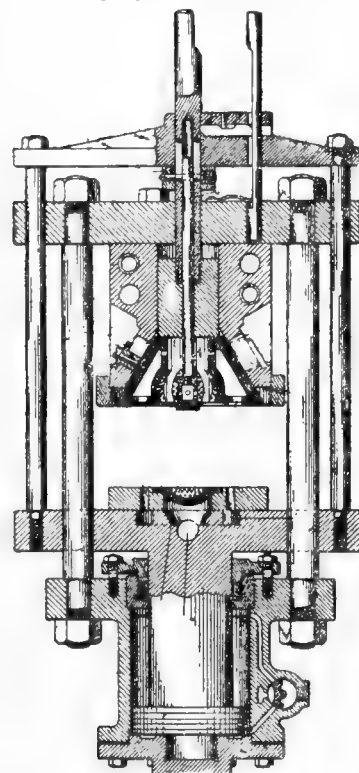
THE accompanying illustration shows a coil steam generator, suitable for use in repairing plants of ordinary size. It stands only 37 inches high and weighs (when ready for shipment with all its accessories) only 400 pounds. It is made by the Williams Foundry & Machine Co., of Akron, Ohio, and is known as their "27." It is heated by gas or gasoline. It has a central 8-inch drum which serves as a water and steam reservoir, around which are two spiral coils of $\frac{3}{4}$ -inch double strength pipe, through which water circulates. There are about 40 feet of pipe in these coils, and they, together with the central drum, are at all times exposed to an intense heat. The whole chamber is enclosed in an asbestos-lined jacket. It is



economical and rapid in operation.

REMOVING GUTTA-PERCHA FROM GOLF BALLS.

The accompanying illustration shows a machine invented for the purpose of removing the gutta-percha covers or exteriors from golf balls that have rubber cores. This apparatus consists of a press having a number of dies, preferably perforated, which subject the golf ball to pressure, while the parts of the machine surrounding the golf ball are heated to a temperature of about 200 degrees F.



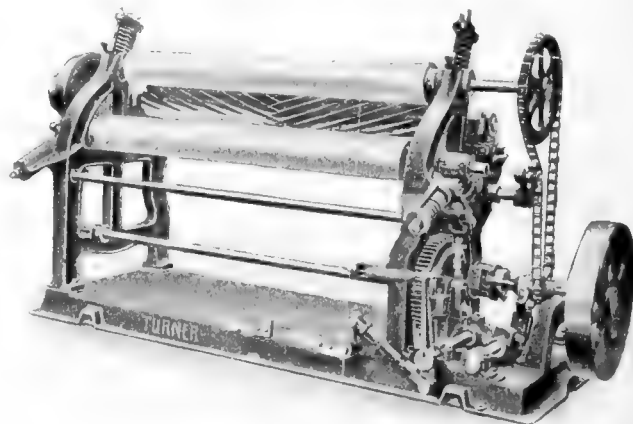
MACHINE FOR REMOVING GUTTA-PERCHA COVERS FROM GOLF BALLS.

the gutta-percha squeezed out of the perforations and the remaining rubber core is then expelled from the machine.

It will surprise a good many people to learn that we are actually exporting hydro-aeroplanes. Mr. Glenn H. Curtiss, the hydro-aeroplane specialist, recently received an order from Russia and three from France for the style of machine which he has invented.

AN ENGLISH PUTTING OUT MACHINE.

The Turner Co., Ltd., Leicester, England, makes a specialty of hide and leather working machinery. The European headquarters of the company are at Frankfort-on-the-Main, Germany, the American house being the Turner Tanning Machinery Company, Peabody, Massachusetts.



THE TURNER PUTTING OUT MACHINE.

A recent machine of theirs which has met with great success is the Rubber Roll Putting Out Machine No. 156, a cut of which we give herewith. In working this the skins to be struck out are placed on a rubber roller which is lifted up by the mechanism connected with the foot treadle as shown in the cut, and then struck out by means of a felt roller and a brass bladed cylinder. This machine has met with great success and over 100 have been sold during the twelve months it has been on the market.

A MACHINE FOR ATTACHING EYELETS.

Eyelets and grommets are used very extensively in certain lines of rubber manufacture. Footwear, clothing, sundries and specialty manufacturers find them a necessity for fastenings and for threading. As a grommet is difficult to attach successfully without a grommeting machine, it also follows that the rubber manufacturers are the possessors of hundreds of machines. They are simple in the extreme, either to operate or understand, and are as useful as they are simple.



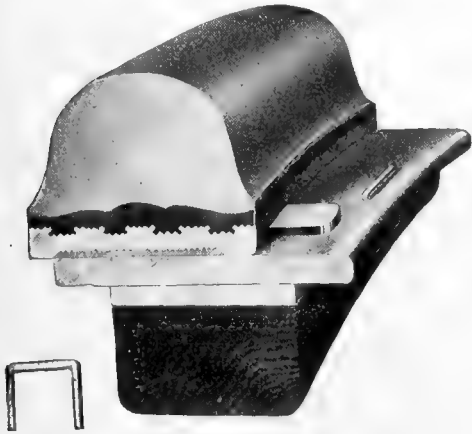
STIMPSON AUTOMATIC EYELETTER.

The Edwin B. Stimpson Co., New York, makes the automatic feed foot-power eyeletter and grommeting machine, which is shown in the accompanying illustration. This company manufactures the grommets, eyelets and washers, and the automatic machine for applying them. They, however, state that they do not have on sale the machine that makes the grommets, but that is another story which must wait for another time.

New Rubber Goods in the Market.

GOODRICH WIRELESS TIRE.

THE Goodrich Wireless Tire has three integral parts—first a special steel base dove-tailed on the top surface; second, a hard rubber sub-base inseparably united with the steel base; third, a soft rubber tread, vulcanized on the hard rubber sub-base. By a special process of manufacture, the union between these three component parts is made permanent, and separation is claimed to be impossible. No internal metal fastenings, such as wire, are imbedded in the rubber. The Goodrich Wireless Tire claims to last longer, to wear better because the rubber compound in the tread is perfectly adapted to the use to which it is put, and to be more resilient because of the sectional shape of the tire with its duplex curves. [The B. F. Goodrich Co., Akron, Ohio.]



LIGATURES IN FRANGIBLE TUBES.

THE desirability of ligatures put up in such a way that they are always ready for use at a moment's notice, without any process of sterilizing, is obvious to anybody. It is something the surgical profession has long wanted. The Seabury frangible tube ligature appears to comply with these requirements. It is put up in a small glass tube and, being absolutely sterilized, is ready for use instantly on its removal from the tube. The accompanying cut shows one of these frangible tubes, the dark piece in the center being a rubber sleeve which plays an important part in this device. It serves two purposes—first, it enables the tube to be broken without cutting the operator's fingers or getting any glass in the ligature, and it also enables these frangible tubes to be shipped without danger, for if they are broken in transit, the break will occur under the rubber sleeve—where the tube is made thin and more readily breakable—and the fluid is kept from leaking out. To remove the ligature it is necessary merely to exert a little pressure at the point covered by the rubber sleeve. The tube breaks at that point and the upper part can be removed without spilling any liquid or doing any damage with broken glass. The method of using these ligatures is very simple. A little pressure is exerted at the thinnest part of the tube under the rubber sleeve, which breaks the tube. The sleeve is then rolled back, the upper part of the tube removed and the ligature taken out for use. [Seabury & Johnson, New York.]



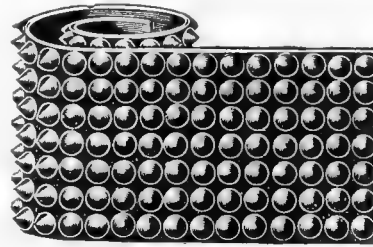
RUBBER-PROOFED AEROPLANE FABRICS.

A number of American manufacturers are making rubber-proofed fabrics for aeroplanes and dirigibles; but they are not the only ones, as this department of rubber manufacture has received considerable attention on the other side. "Aeroplatte"

is the name of a rubber-proofed aeroplane fabric made in England, which is made rubber-proofed on one side, 39 inches wide, with a weight of $3\frac{3}{4}$ ounces per square yard, and also rubber-proofed on both sides, width 38 inches, with a weight of $4\frac{5}{8}$ ounces per square yard. Both of these fabrics are subjected to a thorough strength test. Their color, it might be added, is light tan. [The Northern Rubber Co., Retford, England.]

CONE AND FISH-BONE RUBBER MATTINGS.

Among the many designs of rubber mattings now so ornamental, and at the same time practical, are two in very original patterns. One, in cone pattern, as shown in the illustration, is extremely attractive and particularly adapted for use at entrance ways to halls, offices or wherever a heavy tread is necessary. The other is a smooth fish-



CONE PATTERN.



FISH BONE PATTERN.

bone or herring-bone pattern, quite unique and very useful in halls and stairways, aisles or corridors in churches or theaters, or in any place, public or private, where ordinary carpeting would be used. These mattings come in rolls 6 yards long, 36 inches wide and in colors drab or red. [Dunlop Rubber Co., Ltd., Birmingham, England.]

"SPRING BELT" WATERPROOFED ROBES.

THE new automobile robe is really a combination of a robe and a bag. It unites the two important functions required of a robe for winter driving, i. e., firstly: complete warmth and protection against the elements; secondly, the safety of absolute foot freedom and perfect control of the car, so necessary when roads are wet and slippery. It is absolutely waterproof, being either of rubber fabric on one side or else with an interlining of rubber. It is not fastened by snaps or buckles, but by a light spring, $1/16$ of an inch thick and 1 inch wide, which clasps the body firmly well up under the arm pits and brings the two ends of the robe together at the back and keeps them there, but can instantly be removed with a pull at the front of the robe. The robe itself is 50 inches long and 60 inches wide. It has separate "Footpockets" of lined leather thoroughly waterproofed. This robe is as convenient for women as for men, and is much used by them. [Chicago Auto Robe Supply Co., Chicago, Illinois.]



A DAMP-PROOF JEWEL BAG.

One of the new notions found in the shops is a dainty jewel bag of rubberized cloth in light colors. These bags are lined with a fine quality of chamois, to protect the jewels and to keep them clean and bright. The rubberized outer covering is of great value, as it protects the jewels from the moisture given off from the body so continually. [John Wanamaker, New York.]

**A "BUNNY" WATER BAG.**

If you want to appeal to a child, do so through its imagination. Children are three-quarters imagination. For instance, a plain hot-water bag doesn't appeal particularly to a child; it is not interested in using it even when its physical condition may render it quite desirable, but convert that water bag into a "Teddy Bear" or some other especially attractive object and the child wants it at sight. Here is a new and unique hot-water bag that recognizes that principle. It is called the "Comfort Bunny," and is shaped and covered so that it looks like a white rabbit. It will be seen at a glance that the difficulty would not be to get a child to use it but to get a child to stop using it. [Mistress Patty G. Comfort, Andover, Massachusetts.]

**TO CLEAN THE TREE BEFORE TAPPING.**

It is fairly axiomatic to say that the best way to have clean latex is to keep it clean at the start. It is simpler and easier to keep it free from dirt than to remove the dirt later. The accompanying cut shows a brush with bristles of iron wire which is very useful in cleaning off the particular part of the rubber tree which is to be tapped, thus insuring a flow of latex free from dirt. [Jean Heybroek, Baarn, Holland.]

**RUBBERSET AND ALBERITE.**

It has been recognized for some time that the vulcanized hard rubber base of the Rubberset brush was practically imperishable; at least it far outlived the other parts of the brush. Then the problem was to make the rest of the brush as enduring as

**COMPLEXION BRUSH.**

the hard rubber base which held the bristles. This quest seems to have been successful, and a new substance has been made up which equals in wear the rubberset base, and is used in connection with it. This substance is called "Alberite." It is a mate-

rial similar to solid ivory, takes a very high polish, and is sanitary.

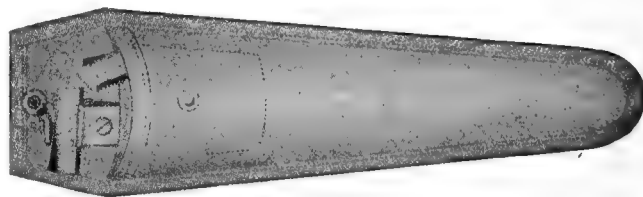
Two brushes in which this composition is used are here illustrated—the complexion and the nail brushes. The first comes

**NAIL BRUSH.**

in two styles, and has white bristles, and the second comes in two sizes, has black and white bristles combined, and is guaranteed indestructible. [Rubberset Co., Newark, New Jersey.]

WATERPROOF CASE FOR BITS.

This is not only a very practical cover but an exceedingly useful one. The case is made of waterproof canvas, with separate compartments for each bit and extra cutter, protecting



the cutting edges of both. The inside pocket for the extra cutter keeps it always within reach. It is not liable to slip out of sight, but when wanted can be readily found. [C. E. Jennings & Co., New York.]

TESTER FOR FLY-WHEEL SPOKES.

A device for detecting an imperfect flywheel is shown in the illustration. It is quite similar to a physician's stethoscope and works practically in the same way. The transmitters and receivers are the same as used in the telephone, and the tubing is of rubber.

It is, in fact, simply an instrument for magnifying sound, so that a difference of sound that would not be perceptible to the unaided ear becomes very readily detected.

The pin in the end of the transmitter is held close against the object to be examined. This instrument is also used to test parts of machines which are in motion but cannot be seen. It has been adopted by the National Tube Co. of Pittsburgh, Pa.

News of the American Rubber Trade.

REPORT OF THE CANADIAN CONSOLIDATED RUBBER CO.

IN the last annual report of the Canadian Consolidated Rubber Company, given out the last of February by the president, D. Lorne McGibbon, he states that the operations for the year 1911 resulted in an increase of 22 per cent. in the sale of general rubber goods, and that there was an increase in the volume of footwear sales—though a lower net return, owing to the reduction in price. He calls attention to an important development in the footwear department in the way of selling directly to the retailer, through the establishment of a large number of selling branches, the total number of which is now twenty-seven. The report continues:

"The total manufacturing profits of the subsidiary companies amounted to the sum of \$489,465.32, from which has to be deducted the sum of \$74,154.80, being the net cost to the Consolidated Company for marketing the products of the subsidiary companies, in excess of the commissions to which it was entitled under its selling arrangement with the subsidiary companies. It was necessary to fix an arbitrary commission for the first year, which commission, although not sufficient to meet all the expenses for the first year, your board believes to be a fair one, as in future the Consolidated Company will not have to incur the extraordinary expenses already referred to in connection with the establishment of its new organization to act as selling agents for the subsidiary companies.

"The total net profits of the Consolidated Company and its subsidiary companies for the past year amounted to the sum of \$415,310.52, and the payments for bond interest, preferred and common dividends, amounted to \$405,842.

"During the year extensive improvements and additions have been made, costing \$742,650.84."

A SUCCESSFUL DERESINATING PLANT.

During the year of 1909 and the early part of 1910 conditions in the rubber market looked favorable for the production of good grade rubbers derived from low grade gums, such as Guayule, Pontianak, etc., to compete in certain lines of manufacture with Pará and plantation products.

With this idea in view the Acushnet Process Co., of New Bedford, Massachusetts, was organized in the spring of 1910 by Francis R. Peabody, of Akron, Ohio; Philip E. Young, of Dedham, Massachusetts, and Allen T. Weeks, of New Bedford, Massachusetts, all of whom are actively engaged with the company and own practically all the stock. Mr. Peabody has had twelve years' experience in the deresinating business and brought many new and advanced ideas for the design of the factory.

Construction was immediately commenced and in November manufacturing was actively begun. The factory is particularly well designed and is adapted to the deresination of gum that contains resin in any form or quantity, and also for the recovery of unvulcanized rubber in friction and miscellaneous clippings. The capacity of the factory varies with the nature of the gums to be treated, from a daily average consumption of about 10,000 pounds of Guayule to 30,000 pounds of Pontianak.

The company has a well-equipped laboratory for testing samples of crude gums for yield and quality, and is always glad to try out any gums sent them and give estimates.

The location in New Bedford was decided upon by reason of its accessibility to New York; a daily freight steamer supplying faster, more dependable and cheaper service than can be had by rail transportation. By this means the company is in a position to obtain and supply goods in a very short time.

The rubber obtained is washed and in most cases vacuum-dried,

though some manufacturers prefer to do their own drying, in which case the rubber is shipped out wet. Yields from the crude vary widely with the different gums to be deresinated, and often a large variation is found in different brands of the same gum. But by reason of observations extending over many years, the variation in yield is a pretty well-known factor and business is frequently done with a guaranteed yield from the crude.

Deresinated rubbers require more care in washing and drying than is given Pará, but in the finished goods often give a higher tensile strength, and are very durable, as shown by exhaustive tests and actual experience. They are well adapted for specification work, as the resin content is easily controlled between the range of 1 per cent. to 7 per cent., and in general they give remarkably good physical tests.

The deresinating business has been good, and for the past six months the factory has been running day and night. Plans are already being laid to take care of the rapidly increasing business by a further addition to the plant, which will double its capacity.

THE B. & R. RUBBER CO.

THE B. & R. Rubber Co., North Brookfield, Massachusetts, has filed with the Secretary of State of Massachusetts a statement of its financial conditions, as required by the statutes, for the business year ending December 31, 1911, the details of which are reproduced below:

ASSETS.

Land and buildings.....	\$ 54,870.33
Machinery, tools and fixtures.....	139,121.51
Merchandise	82,291.71
Cash and receivables.....	83,730.85
Good will	175,000.00
Reserves for prepaid taxes, insurance, etc.....	2,406.56
	<hr/>
	\$537,420.96

LIABILITIES.

Capital, preferred	\$260,000.00
Capital, common	240,000.00
Accounts payable	8,208.08
Surplus	29,212.88
	<hr/>
	\$537,420.96

Liberal allowances have been made for depreciation, and the surplus shown in the statement of December 31, 1910, has been adjusted by the new auditors for the new treasurer, as follows:

Surplus January 1, 1911, as per books.....	\$57,232.04
Less dividends declared December 31, 1910, but entered on the books in January, 1911 (mostly accumulated dividends on preferred stock).....	\$27,192.00
Less other items pertaining to 1910, but on books in 1911.....	4,930.09
	<hr/>
	32,122.09

Leaving an adjusted surplus January 1, 1911..... \$25,109.95

Dividends, reserve for depreciation, bad debts written off, have been deducted from net earnings, and the surplus has been increased \$4,102.93.

MACHINERY OF THE NEWARK RUBBER CO. GOES TO BUFFALO.

The Frontier Tire and Rubber Co., Buffalo, New York, has purchased the entire plant of the Newark Rubber Co., of Newark, New Jersey, consisting of machinery and equipment intended for rubber tire manufacture. This additional machinery will very considerably increase the facilities of the Frontier company.

NEW INCORPORATIONS.

Climatic Raincoat Co., March 22, 1912; under the laws of New York; authorized capital \$10,000. Incorporators: Rupert M. Williams, 250 West Fifty-third street; Simon and Bertha Lippman—both of 1102 Simpson street, Bronx—all of New York. To manufacture raincoats and materials for same. Location of principal office, New York.

Copithorn Demountable Rim Co., February 6, 1912; under the laws of Massachusetts; authorized capital \$100,000. Incorporators: Walter E. Copithorn, Harry M. Ferguson, both of Natick, Massachusetts, and Louis C. Smith, Newton, Massachusetts. To manufacture, sell and deal in rims, tires and wheels for automobiles, etc.

John A. Cordes, Inc., February 28, 1912; under the laws of New York; authorized capital \$10,000. Incorporators: John A. and Edward R. Cordes, both of 595 Park avenue, Brooklyn, New York, and H. F. Hockendorn, Lynbrook, New York. Location of principal office, Brooklyn, New York. To manufacture all kinds of heels.

The Dayton Airless Tire Sales Co., February 27, 1912; under the laws of New York; authorized capital \$10,000. Incorporators: John Schoepflin, Hamburg, New York; J. Louis Seligman, Buffalo, New York, and Albert L. Stratemeier, Hamburg, New York. Location of principal office, Buffalo, New York. To deal in auto tires.

The Detachable Shoe Heel Co., March 13, 1912; under the laws of New York; authorized capital \$25,000. Incorporators: Anton Mitlehner, 417 Willis avenue; William Wagner, 3116 Third avenue, and Emma J. Bergman, 408 East 142d street—all of New York. Location of principal office, New York.

Higrade Sample Shoe Co., March 22, 1912; under the laws of New York; authorized capital, \$25,000. Incorporators: Morris Javitz, 835 Beck street, Bronx; Samuel C. Meyer, 2144 Seventh avenue, both of New York City, and Abraham Golden, 902 DeKalb avenue, Brooklyn, New York. To deal in shoes, rubbers, etc.

The Mansfield Tire and Rubber Co., February 19, 1912; under the laws of Ohio; authorized capital \$300,000. Incorporators: Walter F. and George W. Henne, and C. R. Grant. To manufacture and sell rubber products and handle automobile sundries.

The Pneumatic Dress Form Co., March 19, 1912; under the laws of New York; authorized capital \$200,000. Incorporators: Cecil D. Mackie, 511 West One Hundred and Thirteenth street, New York; Theodore N. Ripsom, Hempstead, New York, and Wm. E. White, 24 Fort Greene place, Brooklyn, New York. To manufacture pneumatic dress forms.

Weldon Roberts Rubber Co., March 12, 1912; under the laws of New Jersey; authorized capital \$100,000. Incorporators: Weldon Roberts, 117 Mechanic street; Peter F. Campbell, 92 Broad street, both of Newark, New Jersey, and Albert H. Sonn, 89 Sherman place, Jersey City, New Jersey. The company has been incorporated for the object of growing and dealing in crude rubber, and all goods of which rubber is a component part.

Standard Resilient Wheel Co., Inc., March 16, 1912; under the laws of New York; authorized capital, \$500,000. Incorporators: Joseph Gaynor, 551 Fourth street; Philip B. Verplank, 2122 Fifth street, both of Brooklyn, New York, and Solomon Jochelson, 457 Grand street, New York. Location of principal office, New York. To manufacture resilient wheels, tires, etc., for automobiles and other vehicles.

F. William Stocker, Inc., March 5, 1912; under the laws of New York; authorized capital, \$50,000. Incorporators: F. W. Stocker, 1015 Garden street, Hoboken, New Jersey; Walter L. Hull, 2569 Bedford avenue, Brooklyn, New York, and J. Frank Steers, Lynbrook, Long Island. To manufacture and deal in waterproofing materials. Location of principal office, New York.

Strong Rubber and Asbestos Manufacturing Co., March 25, 1912; under the laws of New York; authorized capital, \$75,000. Incorporators: Charles E. Strong, Louis E. Strong and Alex-

ander D. Currie, all of 48 Franklin street, New York. Location of principal office, New York.

United States Rubberoline Manufacturing Co., February 16, 1912; under the laws of New Jersey; authorized capital, \$50,000. Incorporators: Charles H. Weller, Harvey B. Hall and Lee J. Cain, all of 75 Montgomery street, Jersey City, New Jersey. To manufacture artificial rubber, waterproofing materials, etc.

Woodside Manufacturing Co., February 28, 1912; under the laws of New York; authorized capital, \$25,000. Incorporators: Edwin C. Sharp, 176 Macon street, Brooklyn, New York; Wm. J. Martin, 114 West Sixty-fourth street, and Henry H. Hunter, 350 West Seventy-first street, both of New York. Location of principal office, New York. To manufacture elastic webbing goods, etc.

Yorkshire Manufacturing Co., February 26, 1912; under the laws of New York; authorized capital, \$15,000. Incorporators: Edward A. Brown, Ralph and Samuel Cohen, all of 135 Broadway, New York. Location of principal office, New York. To manufacture raincoats, etc.

PROCESSES FOR THE USE OF "AMAX" MINERAL RUBBER.

Recognizing the importance of submitting their "Amax" mineral rubber to the test of practical use, and of thus demonstrating its properties, the American Wax Co., of Boston, has published a concise and interesting booklet in German. It contains full explanations and instructions; its value being increased by a number of recipes for the various compounds in which "Amax" can be used in the manufacture of solid tires, motor-truck and automobile tires, hoof pads, heels, wagon covers, bicycle tires, valves, mats, etc.

A carefully written introduction enunciates the properties of "Amax," showing that it is 99.84 per cent. pure, is not porous and is easily worked; so that a large portion of the elasticity of the crude rubber is preserved, which would otherwise be lost through the admixture of dry coloring substances. On the contrary the strength of the vulcanized product is materially increased by the use of "Amax."

This useful booklet has been compiled by Mr. W. C. Coleman, general manager, and forms a valuable feature of the export propaganda in which the company is so actively engaged. It is contemplated to reproduce this booklet in English, which will materially enlarge the scope of its influence.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta-percha for the month of January, 1912, and for the first seven months of five fiscal years, beginning July 1:

MONTHS.	Belting, Packing, and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
January, 1912.....	\$138,544	\$86,483	\$489,541	\$714,568
July-December, 1911.	1,158,878	990,009	3,498,202	5,647,089

Total, 1911-12.....	\$1,297,422	\$1,076,492	\$3,987,743	\$6,361,657
Total, 1910-11.....	1,215,134	1,600,041	3,397,718	6,212,893
Total, 1909-10.....	1,096,459	1,371,199	2,739,953	5,207,611
Total, 1908-09.....	803,067	958,671	2,088,524	3,850,262
Total, 1907-08.....	844,811	1,252,153	2,209,938	4,306,902

The above heading "All Other Rubber," for the month of January, 1912, and for the first seven months of two fiscal years, beginning July 1, includes the following details relating to Tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
January, 1912.....	\$161,337	\$36,805	\$198,142
July-December, 1911.....	1,213,000	254,655	1,467,655
Total, 1911-12.....	\$1,374,337	\$291,460	\$1,665,797
Total, 1910-11.....	1,015,673	319,022	1,334,695

THE REPUBLIC RUBBER CO.

At the annual stockholders' meeting of the Republic Rubber Co., Youngstown, Ohio, held on the fourth Monday of January, the stockholders elected the same board of directors for the ensuing year. The following officers were chosen: President, Thomas L. Robinson; vice-presidents, L. J. Lomasney and L. T. Petersen; secretary, C. F. Garrison; treasurer, M. I. Arms, second. The statement for the year showed a large increase in business, and the completion of a number of improvements to the plant. In addition to the new buildings completed in 1911, the company will erect, during the year 1912, a five-story building, 80 x 200 feet, which will be used for the finishing departments. The new calender building will be in operation by the middle of the year. The company has recently disposed of an additional \$500,000 of preferred stock, which will bring its issued capital to \$4,000,000.

OFFICERS OF THE REVERE RUBBER CO.

At the annual meeting of stockholders of the Revere Rubber Co., held February 26, 1912, the following directors were duly elected: Charles C. Case, Samuel P. Colt, Homer E. Sawyer, Harry E. Converse, James B. Ford, Lester Leland, Elisha S. Williams; and at the meeting of the board of directors for organization, held March 27, 1912, the following officers for the ensuing year were duly elected: president, Elisha S. Williams; vice-president, Charles C. Case; treasurer, William H. Gleason; assistant treasurer, Albert Y. Tucker; secretary, William H. Gleason; assistant secretary, John D. Carberry.

THE HOOD RUBBER CO.'S BALANCE SHEET FOR 1911.

Below is given a condensed balance sheet, as to December 31, 1911, of the Hood Rubber Co., Boston, Massachusetts:

ASSETS.

Plant	\$2,000,000.00
Merchandise	954,166.83
Receivables	1,511,037.31
Cash	274,236.63
Stock owned in other Corporations.....	487,578.09
Patents	1,000.00
	<u>\$5,228,018.86</u>

LIABILITIES.

Capital Stock, Common.....	\$1,000,000.00
Preferred	1,500,000.00
Notes Payable	740,000.00
Surplus	1,988,018.86
	<u>\$5,228,018.86</u>

I have examined the books of the Hood Rubber Co., and HEREBY CERTIFY that the Condensed Balance Sheet shown hereon states the true condition of the Hood Rubber Company, books.

Edw'd P. COMINS,
Boston, Mass., as of December 31, 1911, as disclosed by its
Certified Public Accountant.

March 14, 1912.

HOOD RUBBER CO.—COMPARATIVE STATEMENT OF SIX DIFFERENT YEARS.

The table below gives a comparative statement of the condition of the Hood Rubber Co., at intervals of three years, from 1897—the first year after its formation—to the close of 1911. This table tells in succinct form a story of continuous and exceedingly rapid progress, the assets at the end of 1911 being nearly 11 times the assets at the end of 1897.

ASSETS.

	Oct. 1, 1897.	Oct. 31, 1900.	Oct. 31, 1903.	Dec. 31, 1906.	Dec. 31, 1909.	Dec. 31, 1911.
Plant	\$189,801.50	\$555,000.00	\$770,000.00	\$1,300,000.00	\$1,400,000.00	\$2,000,000.00
Merchandise	120,684.79	258,512.64	649,516.84	843,872.28	626,281.04	954,166.83
Receivable	170,226.82	346,582.54	367,196.45	625,541.41	1,640,438.91	1,999,615.40
Cash	16,499.19	35,068.23	68,771.81	118,930.01	233,998.91	274,236.63
	<u>\$497,212.30</u>	<u>\$1,195,163.41</u>	<u>\$1,855,485.10</u>	<u>\$2,888,343.70</u>	<u>\$3,900,718.86</u>	<u>\$5,228,018.86</u>
LIABILITIES.						
Capital { Common	\$253,000.00	\$750,000.00	\$1,000,000.00	\$1,000,000.00	\$1,000,000.00	\$1,000,000.00
Stock { Preferred					1,000,000.00	1,500,000.00
Debt	242,572.70	290,000.00	685,000.00	950,000.00	470,000.00	740,000.00
Surplus	1,639.60	155,163.41	170,485.10	928,343.70	1,430,718.86	1,988,018.86
	<u>\$497,212.30</u>	<u>\$1,195,163.41</u>	<u>\$1,855,485.10</u>	<u>\$2,888,343.70</u>	<u>\$3,900,718.86</u>	<u>\$5,228,018.86</u>

TYER RUBBER CO.

The Tyer Rubber Co., of Andover, Massachusetts, have placed the contract for the building of their new automobile tire factory with the B. F. Smith Construction Co., of Pawtucket, Rhode Island. Work will be begun at once, and it is expected that the mill will be producing tires by August 15, 1912. The latest and most modern machinery will be installed, and the highest quality of goods manufactured. It will have a capacity of 600 tires per day, and will employ about four hundred hands. Charles T. Main, of Boston, is the architect and engineer of this plant.

BUT PRICES SOMETIMES DO COME DOWN.

The New York "World," in a recent editorial, referring to the threatened advance in the price of leather shoes, because of the increased cost of material and labor, contains this observation:

"It is a poor rule that works only one way. If there were occasional examples of voluntary reduction of price, if the consumer were sometimes given the benefit of decreased cost or of economies of production such as might be applied in this case, there would be less complaint when prices are raised by manufacturers on legitimate grounds."

But, manufacturers do occasionally reduce their prices, as was noticed and commented upon in the March number of THE INDIA RUBBER WORLD, where it is shown that the recent decrease in the price of rubber footwear would aggregate an annual saving to the consumer of about \$5,000,000—i. e., provided the retailer passes along the reduction that comes to him.

RUBBERS FOR FEATHERED SHOES.

A New York daily, among its highly important news received by wireless telegraphy, recently gave the following interesting item to the effect that Parisiennes are to display the plumage of birds on their feet. The paragraph is as follows: "The very latest note of elegance in footwear is declared to be shoes covered with birds' plumage of the most elegant hues, gummed on to the leather. No color effect is too gaudy for the coming season's shoe, and the iridescent plumage of the golden pheasant and the bird of paradise will decorate the low-cut, high-heeled shoes which will be worn. Ibis plumage will also be employed."

If this new fashion of wearing feathers on leather shoes should ever obtain on this side of the water (as a matter of fact, some of the enterprising New York stores have already displayed this feathered footwear in their windows), it will be incumbent upon manufacturers of rubber shoes to get in line with suitable decorations for their products—as, for instance, the fine, glossy leaves of that familiar household plant, the *Ficus Elastica Brooklynensis*.

UNITED STATES RUBBER CO.'S ISSUES.

Transactions on the New York Stock Exchange for four weeks, ending March 23:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend, January 31, 1912—1%.

Week March 2...	Sales 2,775 shares	High 46½	Low 45½
Week March 9...	Sales 15,150 shares	High 48¾	Low 46¼
Week March 16...	Sales 34,350 shares	High 52½	Low 48¾
Week March 23...	Sales 20,300 shares	High 53¾	Low 51

For the year—High, 53¾, March 21; Low, 45¼, February 1.

Last year—High, 48½; Low, 30½.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, January 31, 1912—2%.

Week March 2...	Sales 600 shares	High 110	Low 110
Week March 9...	Sales 800 shares	High 110¾	Low 110
Week March 16...	Sales 1,543 shares	High 112½	Low 110½
Week March 23...	Sales 1,435 shares	High 114	Low 111½

For the year—High, 114, March 22; Low, 109, January 30.

Last year—High, 115½; Low, 104.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, January 31, 1912—1½%.

Week March 2...	Sales ... shares	High ..	Low ..
Week March 9...	Sales 300 shares	High 75¾	Low 75
Week March 16...	Sales 2,300 shares	High 78¾	Low 76
Week March 23...	Sales 1,050 shares	High 78¾	Low 77¾

For the year—High, 78¾, March 22; Low, 75, January 23.

Last year—High, 79; Low, 66.

SIX PER CENT. TRUST GOLD BONDS, \$19,000,000.

Outstanding of the 1908 issue of \$20,000,000.

Week March 2...	Sales 42 shares	High 105	Low 104¾
Week March 9...	Sales 54 shares	High 105	Low 104½
Week March 16...	Sales 65 shares	High 104¾	Low 104½
Week March 23...	Sales 43 shares	High 104½	Low 104½

For the year—High, 105, February 24; Low, 103¾, January 6.

Last year—High, 105; Low, 101¾.

TRADE NEWS NOTES.

The directors of the Converse Rubber Shoe Co., Malden, Massachusetts, recently voted to increase the capital stock of that company from \$400,000 to \$600,000 by issuing preferred stock to the amount of \$175,000, and general stock to the amount of \$25,000. The preferred stock is preferred both as to dividends and assets, and is a 7 per cent. cumulative stock.

The Manufactured Rubber Co., Philadelphia, Pennsylvania, paid a quarterly dividend of 1½ per cent. on March 1 on its preferred stock.

Anerbach Brothers Co., Chicago, Illinois, dealers in scrap rubber, have removed their office from 3101 Market square to 713 Postal Telegraph building, of that city.

The New York section of the Society of Chemical Industry held a meeting at Rumford Hall, Chemists' building, 52 East Forty-first street, New York, on the evening of March 22. Addresses were made by Alcon Hirsch and Thomas W. Pritchard. An informal dinner, attended by many members of the club, preceded the addresses.

J. H. Lane & Co., whose offices have been located for some time at 110 Worth street, New York city, intend, on the first of May, to move into new quarters at Fourth avenue and Twenty-fifth street. This is the first up-town movement among the large selling agents for cotton mills, but, undoubtedly, it is only the beginning of a general movement among such agents to the up-town district.

The Consolidated Rubber Tire Co., New York, reports earnings for its fiscal year sufficient to pay 4 per cent. interest on the \$2,850,500 debenture income bonds, and the full rate will be paid on April 1, when it falls due. The highest rate hitherto paid on the bonds was 3½ per cent. in 1909. As a result of the proposed payment the bonds advanced to the highest price on record, the rise also carrying along both common and preferred stocks.

C. W. Martin who so successfully handled the Southern business of the Goodyear Tire and Rubber Co., from Atlanta,

Georgia, has been given charge of the solid tire business of the company and will hereafter make his headquarters at Akron.

The Standard Tire and Rubber Co., Springfield, Massachusetts, has been formed as a selling corporation to handle the goods in western Massachusetts, Vermont and adjacent territory of the Standard Tire and Rubber Co. and the Standard Auto Supply Co., of Boston. The purpose in forming this new company was to handle the business in the Springfield territory to better advantage.

A tire dealer in Denver, Colorado, made an effective window display by cutting two strips an inch wide out of an inner tube and suspending from them an anvil weighing 150 pounds. The rubber not only stood this strain for a week's time but after the weight was removed is said to have returned almost to its original length.

The Converse Rubber Shoe Co., Malden, Massachusetts, is venturing into the tire field. It has been making some tires for the last four months—not a large number to be sure, preferring to enter this field slowly and giving its product a thorough testing before it embarks on tire making in a large way. It expects, however, in due time to have a fairly extensive tire department.

The Seamless Rubber Co., of New Haven, Connecticut, has increased its capital stock from \$500,000 to \$1,000,000.

The new policy recently adopted by the United States Tire Co., of discontinuing the selling of tires direct to the consumer, has cut off a considerable source of revenue. But it is not likely to result in anything more than a temporary loss; as it was done in order to show the trade the company's friendly attitude, and, of course, the dealers will be thoroughly in sympathy with this new move.

The annual meeting of stockholders of the Rubber Goods Manufacturing Company, for the election of directors and the transaction of other business, will be held at the principal office of the company, 15 Exchange place, Jersey City, New Jersey, on Thursday, April 11, 1912, at 12 o'clock noon.

At a meeting of the directors of the Rubber Goods Manufacturing Company, held March 6, a dividend of 6 per cent. was declared on the common stock. This is an increase of 3 per cent. over the previous dividend, paid last December. The usual quarterly dividend of 1¼ per cent. was also declared on the preferred stock. Both dividends were paid March 15 to stock of record March 9.

The Intercontinental Rubber Co., New York, declared the regular quarterly dividend of 1¾ per cent. on its preferred stock, payable March 30.

At the annual meeting of the Bishop Gutta-Percha Co., held at their office, 420 East Twenty-fifth street, New York City, on January 17, the following officers were elected: Henry A. Reed, president; Henry D. Reed, vice-president; W. Boardman Reed, treasurer; Louis F. Reed, secretary. The Board of Directors consists of the above-named officers.

Many departments of the plant of the Boston Woven Hose & Rubber Co., Boston, are driven at full capacity on a twenty-four-hour basis, and the others are operating at an increase over the normal rate. Shipments for the month of February were greater than any previous month in the history of the company.

The salesmanager of the company, Mr. E. E. Fay, has just returned from an extended trip through the Southern States and reports conditions generally favorable for a larger business in this section. The company's new offices at Cambridge have been completed and are now occupied. These offices are roomy and light, allowing ample space for the present needs of all departments and their future growth. Some of the modern features are indirect lighting and a carrier system operating continuously to and from all departments.

The Candee Rubber Co. closed its factory on March 27, and will reopen on April 4. The fiscal year of the company ends on March 31, and the shut-down is for the annual stock-taking.

PERSONAL MENTION.

Mr. Henry C. Pearson, editor of THE INDIA RUBBER WORLD, who has passed the last four months in the tropics—particularly in Barbados, Trinidad and the coast section of Venezuela, devoting a great deal of time to the consideration of the rubber growing problem in those sections—embarked for home on March 25, and is expected in New York, April 13.

Elon Huntington Hooker, of 512 Fifth avenue, president of the Hooker Electrochemical Co., 40 Wall street, has been appointed treasurer of the Roosevelt Campaign Committee of New York City.

Gray Staunton has resigned from the Vulcanized Products Co., Muskegon, Michigan, formerly known as the Staunton Dielectric Rubber Co., and is connected with that company now only as a stockholder.

AMERICAN GOODS IN HOLLAND.

Mr. J. Polack Grödel, of the "Amerikaansche Handelmaatschappij," which being interpreted, means American Mercantile Co., Amsterdam, Holland, has been making a flying visit to various parts of the United States, including New York, Chicago and Ohio points.

He arrived on the *Ryndam* March 5, and returned on the *George Washington* March 23. Mr. Grödel was in this country about 3½ years ago, and since that time has been acting as representative in Holland and Belgium for several American rubber concerns, including the Goodyear India Rubber Selling Co., New York; Davidson Rubber Co., Boston, Massachusetts, and Davol Rubber Co., Providence, Rhode Island. During his recent visit he secured the representation for the same territory for the Miller Rubber Co., Akron, Ohio.

Before Mr. Grödel arranged with these companies to market their goods, no American druggists' sundries were sold in either Holland or Belgium—the German goods having that entire market. He has been very successful in introducing American goods—hot water bottles and fountain syringes, being in particular demand. These goods are more attractive than the German goods which they have displaced, and his customers have now discovered that they also have the very desirable feature of quality. Incidentally, it might be said that Mr. Grödel has such complete faith in American products that he married a Chicago girl.

TIRE MAKERS LIKE THESE RIVETS.

THE rivets made by the Dubied Machinery Co., 45 West Thirty-fourth street, New York, have proved very popular. They are not only used by the Goodrich, Diamond and other prominent American manufacturers of tires, but they are extensively used by European manufacturers, among them the Michelin, Continental, Dunlop and Bergougnan companies. The secret of the success of these rivets seems to lie in the fact that while the stems are kept soft all through, making it possible to rivet them easily and completely, the heads are absolutely hard all through, giving the maximum of service.

TRADE MARK PROTECTION.

For the benefit of those interested respectively in the legal and commercial aspects of trade mark protection, the monthly publications of the United States Trade Mark Association afford comprehensive reports of trade mark decisions and pending litigation. When it is remembered that decisions have often to stand various appeals before acquiring binding force, the value of the "Trade Mark Reporter" and the "Bulletin of the United States Trade Mark Association" will be recognized by those desirous of following them up through their various stages of litigation.

NEW JERSEY RUBBER INDUSTRIES.
(RUBBER GOODS HARD AND SOFT.)

	1908	1909	1910
Number of establishments...	43	48	51
Capital invested	\$20,331,839	\$25,633,889	\$28,902,913
Value of stock used.....	\$15,852,257	\$19,049,186	\$23,647,377
Wages paid	3,461,070	3,800,066	4,356,028
Value of goods made.....	24,494,363	30,616,077	34,733,592
Average proportion of business done to capacity....	67.67%	77.39%	77.80%
Average number employed.	6,641	7,450	8,459
Average yearly earnings per employee	\$521	\$510	\$515
Average number of days in operation	275	283	284
Average number of hours per week	57	58	57
Factories working overtime	9	14	17
Total hours of overtime....	127	163	187
Horsepower used	23,283	24,301	24,674

RUBBER STAMPS IN MANILA.

A recent issue of a Baltimore daily contains an interesting story of one Jacob Baumgarten, who, for many years, has been in the engraving and rubber stamp business in that city, but who is now well on his way to the Philippines—having sailed from San Francisco some three weeks ago—for the purpose of starting a rubber stamp factory and engraving plant in Manila. His attention was attracted to this field of operation by a retired United States naval officer, who will be interested with him in this new undertaking. There ought certainly to be sufficient field in Manila for a rubber stamp and engraving plant. The rubber stamp is a good index of the commercial progress of any community, and Manila, with a rubber stamp factory in her midst, may now properly take her place among the commercial centers of the earth.

TIRE REPAIRING AS A MUSCLE MAKER.

The superintendent of a tire factory a month or so ago came out with the statement that tire making was quite as conducive to the promotion of muscle as a course in a gymnasium, and cited, by way of illustration, a number of strong men he had in his force, who had become strong men since taking up the work of tire making. Tire repairing seems to be just as conducive to



TIRE REPAIRING ARM.

muscle building as the making of tires, as may be seen by the accompanying illustration, which looks like a cross section of Sandow. This, however, is a partial photograph of J. Abrahams, of Freehold, New Jersey, who has been repairing tires for a number of years, and owes that formidable muscular formation to this occupation. He was formerly connected with the Dow Tire Co., and, incidentally, he utilizes some of his time in equipping and systematizing rubber tire repair departments.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED FEBRUARY 6, 1912.

- N** 1,016,328. Hose nozzle holder. C. F. Lindquist, as assignor to C. F. Lindquist, O. Winstrand, both of Minneapolis, Minn.
 1,016,329. Hose nozzle holder. C. F. Lindquist, as assignor to C. F. Lindquist, O. Winstrand, both of Minneapolis, Minn.
 1,016,330. Vehicle wheel. E. B. Kiffin, Lorain, Ohio.
 1,016,340. Patch for pneumatic tires. C. W. McKee, San Diego, Cal.
 1,016,364. Means for automatically inflating tires of vehicle wheels while in motion. J. L. R. Ivay, and J. L. Ivay, both of Lansing, Transval.
 1,016,406. Shoe retainer. J. M. Harrison, Coon, Pa.
 1,016,472. Tire. T. V. Buckwalter, Altoona, Pa.
 1,016,483. Apparatus for producing rubber coated blanks. W. W. Duncan and N. E. Tousley, Watertown, Mass., assignors to Hood Rubber Co., Boston, Mass.
 1,016,534. Spring wheel. H. J. Wirtchul, Canton, Ohio.
 1,016,558. Pneumatic attachment for vehicle wheels. H. Garrison, Chicago, Ill.
 1,016,632. Sprinkler for spraying areas of definite shape. G. H. Hunter, Redlands, Cal.
 1,016,673. Vehicle wheel. W. I. Cunningham, Philadelphia, Pa.
 1,016,709. Tire. J. J. Patton, New York.
 1,016,778. Hose nozzle holder. G. Ross, Paris, Ind.
 1,016,812. Tire protector. J. L. Barnes, Des Moines, Iowa.
 1,016,846. Antiskidding attachment for wheels. C. H. Myers, Franklin, Pa.
 1,016,871. Resilient wheel. H. W. Brooks and S. F. Krupp, Memphis, Tenn.
 1,016,896. System for inflating pneumatic tires. C. A. Rivers, Denver, Colo.
 1,016,991. Elastic tire. C. Herold, Bunn, Austria-Hungary.
 1,017,228. Horseshoe. J. A. Neil, assignor of one-half to J. E. Gale, and one-eighth to J. A. Donaldson, all of Washington, D. C.
 1,017,259. Elastic wheel. L. Antoine Garchey, Paris, France.
 1,017,265. Hose patch. S. McKee and J. H. Blom, Everett, Wash.
 1,017,271. Laminated cohesive interwound fabric band. L. A. Subers, Cleveland, Ohio.
 1,017,288. Piano saddle. C. W. Graves, Logansport, Ind.
 1,017,314. Cushion sole. A. Reed, St. Joseph, Mo., and D. A. Reed, Bozeman, Mont.
 1,017,330. Spring wheel. F. Smith, Rossville, Ga.
 1,017,332. Elevator safety device. F. Sowinski, Detroit, Mich.
 1,017,363. Wheel. J. L. Adamson, Brooklyn, N. Y.
 1,017,466. Vehicle wheel rim. G. T. Reichenbach and H. O. Peck, assignors to H. O. Peck Automobile Wheel Co., all of Portland, Ore.
 1,017,482. Method of manufacturing lawn tennis and like balls. J. Turner, and A. Buxton, Uxbridge, England, assignors to The Rubber Patents, Ltd., Cowley, England.
 1,017,532. Hose reel. R. W. Glenn, Fruitvale, Cal.
 1,017,598. Tire. A. Seelig, Wildersdorf, Berlin, Germany.
 1,017,608. Piano protector. W. R. Turner, Wallace, Idaho.
 1,017,638. Hose nozzle. G. W. McCoolle, Hot Springs, Ark.

Designs.

- 42,164. Golf ball. F. C. Breakpear, Chichester, Mass., assignor to A. G. Spalding & Bros., Jersey City, N. J.

Trade Marks.

- 40,656. Peerless Rubber Mfg. Co., New Durham, N. J. The word *Arctic*. For packing composed of rubber or rubber compound.
 52,269. The Goodyear Tire & Rubber Co., Akron, Ohio. The words *Blue Streak*. For elastic vehicle tires.
 59,364. Bowers Rubber Works, San Francisco, Cal. The words *Gee-Whiz*. For rubber hose, packing, belts, etc.
 60,233. C. F. Wren, Cleveland, Ohio. The word *Ferromatic*. For elastic tires, etc.
 60,258. Standard Underground Cable Co., Pittsburgh, Pa. The word *Excelsite*. For insulation for electrical conductors.

ISSUED FEBRUARY 20, 1912.

- 1,017,732. Tire. F. E. Blaisdell, Philadelphia, Pa.
 1,017,764. Wheel tire. P. M. Kemter, and A. W. Hentschel, West New York, N. J.
 1,017,775. Hose coupling. L. Le Breton, Cleveland, Ohio.
 1,017,809. Puncture closure for pneumatic tires and the like. R. Sampson, Montreal, Quebec, Canada.
 1,017,814. Resilient tire. S. S. Scott, Chicago, Ill.
 1,017,895. Spring wheel. G. H. Langton, and J. M. Kellerman, assignors to Auto Air Cushion Wheel Co., both of Los Angeles, Cal.
 1,017,909. Traction and non-skid device. J. W. Reed, New York.
 1,017,919. Spring wheel. S. R. Sanders, assignor of one-half to C. C. Gossard, both of Aurora, Neb.
 1,017,956. Tire setting tool. J. F. Carter, Wadley, Ala.
 1,017,961. Antiskidding device. H. A. Fisk, Clinton, Mich.
 1,017,966. Hose nozzle. H. F. Goetz, assignor to Waterbury Manufacturing Co., both of Waterbury, Conn.
 1,017,980. Elastic tire. J. Lazarus, Boston, Mass.

- 1,017,988. Vehicle wheel with elastic spokes. H. Munk, Berlin, Germany.
 1,018,006. Resilient tire. M. C. Rogers, Williams, Cal.
 1,018,017. Resilient tire for wheels of motor vehicles, etc. H. M. Bagdikian, Worcester, Mass.
 1,018,049. Resilient tire. M. Hanford, and D. L. Taylor, Malden, Mass.
 1,018,088. Wheel. A. J. Swing, assignor to The Auto-Spring Wheel Co., both of Cincinnati, Ohio.
 1,018,179. Link for cross chains of antiskid devices. F. A. Fox, Brooklyn, N. Y.
 1,018,185. Tire case for automobiles. L. Grimm, Pittsburgh, Pa.
 1,018,206. Tire chain and guard. O. J. Mikkelsen, Ferryville, Wis.
 1,018,238. Detachable rim for pneumatic tires. P. E. Doolittle, Ontario, Canada.
 1,018,259. Spring wheel. W. T. Murray, Baldwin, Kans.
 1,018,288. Holder for erasers. H. H. Yelf, Portsmouth, England.
 1,018,307. Resilient wheel. J. W. Enright, New Orleans, La.
 1,018,310. Hose nozzle. S. Frey, assignor of one-half to S. K. Elliott, both of Los Angeles, Cal.
 1,018,385. Varnish. L. H. Backland, Yonkers, N. Y.

Trade Marks.

- 60,025. The O. K. Manufacturing Co., Syracuse, N. Y. The initials *O. K.* For erasers.

ISSUED FEBRUARY 27, 1912.

- 1,018,454. Tire. W. I. Twombly, assignor to Twombly Motors Co., both of New York.
 1,018,467. Automobile wheel. A. R. Wylie and J. G. Wright, Big Spring, Texas.
 1,018,589. Process of extracting wax from the candleilla plant. B. Y. Sharp, Uvalde, Texas.
 1,018,626. Process of manufacturing antislipping tires for motors and other vehicles. A. Michelin, Paris, France.
 1,018,652. Shoe retainer. J. A. Drechsler, Hillsdale, Mich.
 1,018,708. Shoe protector. J. R. Hetrick, Lompoc, Cal.
 1,018,735. Resilient tire. F. Zimmermann, assignor to Francis Keil & Son, both of New York.
 1,018,764. Hose rack. J. M. Howard, Washington, D. C.
 1,018,774. Vehicle wheel. I. Pascal, Montreal, Quebec, Canada.
 1,018,814. Vehicle tire. H. H. Durr, Springfield, Ohio.
 1,018,831. Nipple cover. C. W. Ladley, Ingram, Pa.
 1,018,833. Convertible motor. J. C. Lincoln, East Cleveland, Ohio.
 1,018,861. Brushing means for disk records for phonographs. F. W. Wood, Los Angeles, Cal.
 1,018,871. Door stop. J. W. Buoy, Eugene, Ore.
 1,018,876. Sight for firearms. F. C. Chadwick, assignor to Savage Arms Co., both of Utica, N. Y.
 1,018,886. Printing wheel and ink fountains. E. W. Dodge, Augusta, Ga.
 1,018,895. Tire. E. H. Freas, Philadelphia, Pa.
 1,018,934. Electric light switch. C. P. Smith, Oak Park, Ill.
 1,019,000. Hose coupling. S. S. Watson, Colegrove, assignor to C. F. Schwickert—both of Los Angeles, Cal.

Trade Marks.

- 59,353. Eberhard Faber, West New Brighton, N. Y. The initial *F* enclosed in a diamond shape. For rubber erasers.
 60,350. Michelin Tire Co., Milltown, N. J. A photograph of tires within a ring. For pneumatic tires for automobiles.
 [NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1911.
 *Denotes Patents for American Inventions.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, FEBRUARY 7, 1912.]

- 23,573. Use of Bakelite in manufacturing glucose. W. P. Cohoe, 148 Van Horne Street, Toronto, Canada.
 23,583. Rubber washers in bottle stoppers. D. Hurst, Cumbria, Malborough Road, Chiswick, and H. K. Bridger, 5 John Street, Adelphi—both in London.
 23,619. Table ball game with rubber band. H. Hargreaves, Grosvenor Terrace, Limefield, Bury, and J. N. Kay, Briar House, Bury Old Road, Heywood—both in Lancashire.
 *23,657. Vehicle wheels with rubber tires. O. Treier, 611 Amsterdam Avenue, New York, U. S. A.
 23,689. Inflated rubber cylinder for deadening landing shocks of balloons. C. Labro, 13 Rue de Dunkerque, Paris.
 23,694. Elastic connections for cardboard boxes. M. Cheeraerds, 62 Rue de la Croix de Fer, Brussels.
 23,727. Treating India-rubber sheets, etc. C. J. Beaver, Holme Lea, Ashley Road, Hale, and E. A. Claremont, Broom Cottage, High Leigh—both in Cheshire.
 *23,762. Corrugated rubber covers for tires. D. Rawstron, 602 Harvester Bldg., Chicago, U. S. A.
 23,787. Use of rubber in stuffing box packing. G. W. Beldam, Boston Lodge, Ealing, London.
 23,814. Use of rubber in vehicle tires. R. C. Wilford, The Rectory, Garforth, Leeds.

- 23,815. Improvements in wheel tires. C. H. Southall, 7 Vickers Avenue, Kirkstall, near Leeds.
- 23,865. Instrument for tapping rubber trees. R. Lyne, Botanical Gardens, Entebbe, Uganda, British East Africa.
- 23,889. Valves. Dental Mfg. Co., Alston House, Newman Street, and H. Phillips, 70 Alexandra Road, Wembley, London.
- 23,873. Rubber tire bodies and covers. G. L. Hall, 85 Gracechurch Street, London.
- 23,913. Elastic tire bodies and covers. Soc. Cooperateur Financier Français, 43 Rue de Richelieu, Paris.
- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, February 14, 1912.]
- 24,110. Use of rubber in metal boxes. H. Talbot, 158 East Dulwich Grove, Dulwich, London.
- 24,129. Hard rubber treads for tires. C. H. Gorth, 2823 North 12th Street, Philadelphia, U. S. A.
- 24,147. Improvements in smoke helmets. H. & B. Dräger, 53 Mooslinger Allee, Lubeck, Germany.
- 24,160. Flexible beer pipes. F. W. Schroeder, 84 Upper Kennington Lane, London.
- 24,280. Jackets and covers of tires. J. H. Messenger, 36 Beaumont Street, Portland Place, London.
- 24,300. Improvements in pneumatic tires. J. C. Barker, 45 Albion Street, Leeds.
- 24,325. Apparatus for coagulating latex by smoke. Bertrams, Ltd., St. Katherine's Works, Sciennes, R. F. Gillespie, 35 Mentone Terrace, and P. M. Matthew, Leith Walk—all in Edinburgh.
- 24,344. Rubber buffers in road vehicles. Daimler Motor Co., and F. M. Charles, Daimler Works, Coventry.
- 24,358. Appliance for cleaning lavatory basins. L. O. Howell, 1613 North Columbia Street, Philadelphia, U. S. A.
- 24,383. Improvements in tire jackets and covers. J. Russell, 4 Westgate Road, Newcastle-on-Tyne.
- 24,387. Tire attachments. K. Hindley, Turner House, Ringwood, Hampshire.
- 24,546. Rubber horseshoes. W. Bonson, 11 Stamford New Road, Altrincham, Cheshire.
- 24,572. Detachable attachment to tires. W. H. Bailey, 21 Landsdowne Place, Hove, Sussex.
- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, February 21, 1912.]
- 24,592. Inflation of tires. T. D. Kelly and M. K. Kelly, 9 Avenue Road, Southend-on-Sea.
- 24,595. Sole and heel protectors. J. H. Hammond, 51 Arundel Street, Leicester.
- 24,672. Improvements in rubber tires. J. Brown, Market Square, Auckland, New Zealand.
- 24,727. Improvements in tires. E. Pass, Station Works, Denton, near Manchester.
- 24,733. Cushioning devices for devices for boots. W. H. Hansel, 61 Church Street, Cromer, Norfolk.
- 24,738. Molding rubber tires. G. J. Owens, 15 Montpelier, Edinburgh.
- 24,790. India rubber substitutes. F. E. Matthews and E. H. Strange, 7 Staple Inn, London.
- 24,932. Cushions for tires. R. Bill, Trent Vale, Stoke-on-Trent, and H. Silvester, 59 Liverpool Road, Newcastle, Staffordshire.
- 24,975. Trimming rubber boot pads. O. E. Gunton, St. James Street, Leicester, and G. H. Hickson, Rosedene, Austin avenue, Stockton-on-Tees.
- 25,057. Tread ring of hard rubber. G. L. Tweedale, Prospect Works, Lomax Street, Rochdale, J. Lithgow, 28 Brierley Street, Bury, and J. Rigg, Prospect Works, Lomax Street, Rochdale—all in Lancashire.
- 25,071. Use of rubber in compound fabrics. W. Leuthaus, and H. Munk, 50 Kurfürstendamm, Berlin, Germany.
- 25,082. Vehicle wheels. S. A. Currin, 29 Marsh Street, Bristol.
- 25,087. Artificial caoutchouc. G. Reynaud, 5 Rue Salneuve, Paris.
- 25,120. Use of rubber for motor car matting. G. Hookham, 7 New Bartholomew Street, Birmingham.
- 25,137. Tire attachment to rims. J. Cryer, 2 Well Street, Falcon Square, London, and J. Webster, Edgwick Mill, Paradise, Foleshill, Coventry.
- 25,153. Improvements in cycle pedals. H. S. Yoxall, and C. W. Thorneycroft, Oliver Street, Works, Birmingham.
- 25,168. Improvements in tread bands. A. J. Smith, 210 Venner Road, Sydenham, London.
- 25,201. Artificial caoutchouc. G. Reynaud, 5 Rue Salneuve, Paris.
- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, February 28, 1912.]
- 25,265. Improvements in boot heel. M. Saitzew, 9 Tschernichevsky Pereulok, Moscow, Russia.
- 25,286. Rubber draft excluders. W. Sommer, 70 Chancery Lane, London.
- 25,298. Use of Balata in tires. B. Abeil, and E. Abeil, Maurs-du-Cantal, Cantal, France.
- 25,302. Tire attachments to rims. R. W. H. Rodney, Orchard Street, St. Augustine's, Bristol.
- 25,307. Molding waste rubber. Millwall Rubber Co., The White City, Harpenden, Hertfordshire.
- 25,308. Apparatus for treating powdered vulcanized rubber. Sir C. Lawes-Wittewronge, Rothamsted, Harpenden, Hertfordshire.
- 25,317. Resilient tread blocks. R. Rhone, 4 Rue Castellane, Paris.
- 25,345. Stuffing boxes. G. Hurn, 51 Stromstrasse, Berlin, Germany.
- 25,400. Plastic rubber substitutes. H. Timpe, 125 Weesperzyde, Amsterdam, and J. G. Jurgens, 3 Vassausingel, Vymegue, Holland.
- 25,412. Rubber rings in valves. F. H. Brook, 11 Queen Victoria Street, London.
- 25,451. Rubber tips for walking sticks. R. A. Moxhay, 77 Chapman Road, Victoria Park, London.
- 25,458. Rubber bands for umbrellas. M. Izbicki, The White House, Heathurst Road, Sanderstead, and N. Cattaneo, 9 Royal Mansions, London Road, West Croydon—both in Surrey.

- 25,475. Cushions for cycles. C. H. Stoddart, 34 Weymouth Road, Wembley, London.
- 25,477. Necktie retainers. H. W. T. de l'Isle, 58 Tyrwhitt Road, Brockley, Kent, and A. D. Cooper, 19 Chulworth Street, Paddington, London.
- 25,524. Rubber balls. Leedes Rubber Works and J. H. Smith, Monton Road, Eccles, Lancashire.
- 25,573. Coagulation of latex. G. B. Livingston, 68 Gordon Street, and W. D. Carney, 116 Hope Street both in Glasgow.
- 25,624. Inflating tires. F. C. Poulton, 7 Highfield Drive, Monton, near Manchester.
- 25,641. Heel protectors. W. L. Daucutt, 13 High Street, South East Ham, London.
- 25,660. Tire jackets and covers. J. E. Alkin, Witherley House, Atherstone, Warwickshire.
- 25,717. Garden syringes. A. H. Purser, 92 Hatton Garden, London.
- 25,743. Walking stick seats. C. W. Hudson, 10 Ashchurch Park Villas, Ravenscourt Park, and W. A. Brue, 23 St. James' Street both in London.
- 25,845. Rubber springs. P. Pracher, 17 Avenue N. C. Paris.
- 25,850. Caoutchouc substitutes. Farbwerke Hoechst, 1 Bayer & Co., Elberfeld, Germany.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application.)

- 431,488 (June 22, 1911). J. A. Anglade. Vehicle tires.
- 431,500 (September 13, 1910). H. G. Hugon. Counter blocks of rubber for vehicle tires.
- 431,528 (June 23, 1911). G. Litoff. Filled tires for all kinds of vehicles.
- 431,692 (May 17). Leduc, Hertz & Co. Preparation of fabrics for dirigible aeroplanes.
- 431,879 (July 7). J. W. Driscoll. Improvements in pneumatic tires for vehicles.
- 431,911 (May 24). F. C. Roberts. Filled rubber tires.
- 432,076 (July 8). S. Berg. Sectional pneumatic tires.
- 432,058 (July 8). G. Rose. Improvements in vulcanizing appliances for repairing pneumatic tires.
- 431,961 (July 5). Toledo Computing Scale Company. Vulcanization of pneumatic tires.
- 431,966 (September 23, 1910). J. Dybowski. Separation of rubber and resins, combined in various raw materials.
- 432,232 (June 10). F. Rose and A. Rœ. Improvements in road vehicle tires.
- 432,294 (October 1, 1910). L. & A. Emery. Antiskid protection for pneumatic tires.
- 432,318 (July 18, 1911). K. A. Schaumann. Elastic tire.
- 432,179 (July 12, 1911). A. Hachler. Process for giving firmness to softened hollow rubber balls.
- 432,392 (July 20). R. Latour & A. Capelle. Composite cover for pneumatic tires.
- 432,399 (July 20). G. G. Johnson. Improvements in tire preparation and application of vulcanized leather, to tires, heels, etc.
- 432,489 (July 22). E. Aimond. Filled auto skid tire.
- 432,513 (July 24). P. Pieri. Wheel with elastic tire.
- 432,563 (July 25). W. H. Hoopers. Elastic tire.
- 432,818 (July 29). M. W. Fink & A. K. Kobiolki. Improvements in the manufacture of pneumatic tires and driving belts, golf balls, divers' clothing, and other articles wholly or partly of rubber.
- 432,875 (August 2). F. Sully. Elastic vehicle tires.
- 433,274 (June 16). G. Geffroy. Pneumatic wheel with inner tire and rigid protective tread.
- 433,295 (July 19). G. Allié. Elastic vehicle tire.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Robet, Ingénieur-Conseil, 16 avenue de Villier, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with dates of validity.)

- 244,289 (from April 7, 1911). Lothar Schumann, Vordamm, Brandenburg. Spring wheels with elastic tires.
- 244,079 (from March 30, 1911). Joseph François Staub, Paris. Removal of pneumatic tires from bicycle wheels.
- 244,359 (from July 9, 1910). Emile Lapisse, Arcueil, France. Manufacture of felt articles impregnated with rubber.
- 244,470 (from March 10, 1911). W. M. Callender, Beauregard, Guernsey. Production of rubber ferments from the latex of rubber plants.
- 244,784 (from September 25, 1910). W. Müller, Simonstrasse 13, Elberfeld. Machine for trituration of vulcanized rubber and for sifting the ground product by a current of air.
- 244,712 (from June 1, 1911). H. P. C. G. Debaugé, Paris. Process for purification of rubber.

THE KINGDOM OF BELGIUM.

(PATENTS PUBLISHED.)

- 239,860 (1912). F. E. Matthews and E. H. Strange, 7 Staple Inn, London. Improvements in manufacture of synthetic rubber.
- 240,077 (1912). E. Maass, Schoeneberg, Germany. Extraction of rubber from latex and from isoprene, etc.
- 239,963 (1912). H. P. C. G. Debaugé, Paris. Regeneration of vulcanized rubber.
- 240,657 (1912). The Spirilla Company, Meadville, U. S. A. Appliance for exhibiting elastic objects and displaying their elasticity.
- 240,505 (1912). L. Liais, Paris. Improvements in rubberized fabrics for tire covers.
- 240,248 (1912). A. Delanney, Brugelette (Belgium). Rubber tips for chair feet.

Review of the Crude Rubber Market.

THE London rubber auction of February 27, of which only cable reports were to hand at date of last report, disposed of the large quantity of 865 tons without any perceptible decline. This fact has been quoted as illustrating the strength of the demand for consumption, which, it has been stated, could have absorbed even the whole of the arrivals since the previous auction, representing about 1,100 tons. American buyers' operations are said to have been large on this occasion.

Based on this situation, and on the inscription sale at Antwerp of 500 tons at full rates, the price of fine hard Pará, which had been for a week about 4s. 7½d., entered on March 4 upon a steady gradual upward movement, reaching 5s. 2d. by March 27. By the date of the fortnightly auction of March 12, the price had improved to 4s. 10½d., in sympathy with which movement the sale displayed on the average an advance of fourpence on the rates of the previous auction. The reduction of nearly half in the quantity offered (483 instead of 865 tons) tended to impart strength to the market and to stimulate buying.

The result of the sale of the 12th was calculated to favor the advance already in progress in fine hard Pará, which has since then improved from 4s. 10½d. to 5s. 2d. at time of writing. Whether this speculative advance will be maintained, in view of the light biddings at the sale of the 26th, and the consequent failure to establish an advance reflecting the latest movements of the open market, is being watched with interest. The opinion has been expressed that consumers are apparently not willing to follow the upward movement of the London market.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and March 30—the current date.

PARA.	Apr. 1, '11.	Mar. 1, '12.	Mar. 30, '12.
Islands, fine, new.....	130@131	107@108	117@118
Islands, fine, old.....	none here	108@109	119@120
Upriver, fine, new.....	139@140	109@110	122@122
Upriver, fine, old.....	144@145	112@113	124@125
Islands, coarse, new.....	62@63	62@63	67@68
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	108@109	92@93	98½@99
Upriver, coarse, old.....	110@111	94@95	none here
Cameta	79@80	65@66	72@73
Cacho (Peruvian) ball.....	108@109	93@94	98@99
Cacho (Peruvian) sheet.....	none here	none here	none here

PLANTATION PARA.

Fine smoked sheet.....	159@160	130@131	139@140
Fine pale crepe.....	145@146	129@130	138@139
Fine sheets and biscuits.....	142@143	125@126	136@137

CENTRALS.

Esmeralda, sausage.....	105@106	91@92	97@98
Guayaquil, strip.....	none here	none here	none here
Nicaragua, scrap.....	103@104	90@91	96@97
Panama	none here	none here	none here
Mexican, scrap.....	103@104	89@90	95@96
Mexican, slab.....	62@63	none here	none here
Mangabeira, sheet.....	68@69	68@69	67@68
Guayule	64@65	60@61	69@70
Balata, sheet.....	93@—	89@90	90@91
Balata, block.....	67@68	55@56	62@63

AFRICAN.

Lopori ball, prime.....	123@124	109@110	122@123
Lopori, strip, prime.....	none here	none here	none here
Aruwimi	122@123	105@106	none here
Upper Congo ball, red.....	125@126	110@111	none here
Ikelemba	none here	none here	none here
Sierra Leone, 1st quality.....	122@123	98@99	109@110

Massai, red	122@123	101@102	111@112
Soudan, Niggers	none here	none here	none here
Cameroon ball.....	79@80	70@71	91@92
Benguela	79@80	71@72	78@79
Madagascar, pinky.....	100@101	none here	none here
Acera, flake.....	40@41	27@28	28@29

EAST INDIAN.

Assam	104@105	none here	none here
Pontianak	7@7½	5¼@—	6¼@—
Borneo	none here	none here	none here

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands fine.....	5\$300	Upriver, coarse.....	5\$300
Islands, coarse.....	2\$850	Upriver, fine.....	6\$300
		Exchange	16¼d.

Latest Manaós advices:

Upriver, fine.....	6\$550	Exchange	167/32d
Upriver, coarse.....	4\$950		

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During March there has been a good general demand for paper, with rates towards the latter part of the month rather higher than previously, the best rubber names ruling at 4½@5 per cent., and those not so well known, 5½@5¼ per cent."

NEW YORK PRICES FOR FEBRUARY (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine	\$1.07@1.11	\$1.28@1.68	\$1.87@2.10
Upriver, coarse .....	.92@.94	.98@1.20	1.15@1.28
Islands, fine	1.05@1.08	1.15@1.56	1.81@2.04
Islands, coarse .....	.62@.65	.65@.90	.75@.89
Cameta .....	.65@.67	.68@.95	85@.98

African Rubbers.

NEW YORK STOCKS (IN TONS).

February 1, 1911.....	115	September 1, 1911.....	112
March 1	111	October 1	67
April 1	98	November 1	45
May 1	98	December 1	60
June 1	90	January 1, 1912.....	58
July 1	90	February 1	150
August 1	90	March 1	90

Para.

R. O. AHLERS & Co. report [March 4]:

Market has been steady and nearly all lots coming from the interior have been bought by exporters for shipment to New York. By the last two steamers to New York were shipped more than 1,594 tons. There is no doubt that the crop is larger than the crop of last year.

R. O. AHLERS & Co. report [March 11]:

Market has advanced steadily in accordance with quotations from consuming centers, and Rs 6\$000 kilo (about \$2) has been paid for Upriver fine, which price had not been reached since about 10 months ago, although exchange keeps steady and the continual news of unrest in the South seems to have no influence on exchange. The crop will be larger than last year's, but the demand, specially from the States, seems to be equal to arrivals.

Rubber Receipts at Manaós.

	DECEMBER.			JANUARY.		
FROM—	1911.	1910.	1909.	1912.	1911.	1910.
Rio Purús-Acre	694	634	566	2,867	2,162	2,993
Rio Madeira	467	277	480	760	490	489
Rio Juruá	651	704	580	554	1,024	1,036
Rio Javary-Iquitos.....	189	455	334	558	237	609
Rio Solimões	170	252	248	149	147	185
Rio Negro	230	64	173	2	38	174
Total	2,401	2,386	2,381	4,890	4,098	5,486
	For Shipment From					
Manaós	1,942	1,974	2,038	2,738	2,489	3,772
Pará	459	412	343	2,152	1,609	1,714
Total	2,401	2,386	2,381	4,890	4,098	5,486

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.			Total	Total	Total
	Fine and Medium.	Coarse.	1912.	1911.	1910.
Stocks, January 31... tons	260	45	305	242	232
Arrivals, February.....	1,689	634	2,323	1,202	2,005
Aggregating	1,949	679	2,628	1,444	2,237
Deliveries, February.....	1,697	652	2,349	1,279	2,051
Stocks, February 29... 252	27	—	279	165	186
PARA.			ENGLAND.		
	1912.	1911.	1910.	1912.	1911.
Stocks, January 31... tons	3,370	1,765	1,170	1,050	1,225
Arrivals, February.....	3,985	4,695	3,660	972	1,071
Aggregating	7,355	6,460	4,830	2,022	2,296
Deliveries, February....	4,115	3,215	4,365	967	911
Stocks, February 29... 3,240	3,245	465	1,055	1,385	510
World's visible supply, February 29... tons	6,383	6,800	4,221		
Pará receipts, July 1 to February 29.....	22,650	21,715	23,130		
Pará receipts of caucho, same dates.....	3,400	4,080	3,910		
Afloat from Pará to United States, Feb. 29	584	665	1,980		
Afloat from Pará to Europe, February 29.	1,225	1,340	1,170		

Rubber Stock at Para.

Stock for January 31 showed an increase caused by heavier arrivals, while that of February 29 shows a slight decrease.

January 31, 1911..... tons	2,085	August 31, 1911..... tons	3,450
February 28	3,787	September 30	3,102
March 31	4,214	October 31	3,320
April 30	5,104	November 30	3,050
May 31	5,350	December 31	2,675
June 30	4,545	January 31, 1912.....	3,370
July 31	3,884	February 29	3,240

Liverpool.

WILLIAM WRIGHT & Co. [March 1]:

Fine Pará.—The market has been firm with only slight fluctuations. Sellers, in view of the active demand, especially for plantation, have operated sparingly. Manufacturers are hesitating; we believe they are wishful to buy, but are afraid of some phenomenal decline, of which there is no evidence. We look for a continuance of steady prices, with moderate fluctuations. America still continues to absorb stock from this market in quantity, and, in spite of stocks, very little spot rubber is obtainable. Closing value: Hard Fine, 4s. 7½d. [\$1.125]; Island, 4s. 7d. [\$1.114].

PARA RUBBER VIA EUROPE.

POUNDS.	
FEBRUARY 26.—By the <i>Celtic</i> =Liverpool:	
N. Y. Commercial Co. (Fine)...	34,000
FEBRUARY 26.—By the <i>Cevic</i> =Liverpool:	
N. Y. Commercial Co. (Fine)...	56,000
FEBRUARY 28.—By the <i>Pennsylvania</i> =Hamburg:	
Henderson & Korn (Caucho)...	11,500
FEBRUARY 28.—By the <i>Alliance</i> =Mollendo:	
W. R. Grace & Co. (Caucho)...	7,000
FEBRUARY 28.—By the <i>Amerika</i> =Hamburg:	
Ed. Maurer (Fine).....	7,000
Wallace L. Gough Co. (Fine)...	5,000
Raw Products Co. (Coarse)....	3,500
MARCH 4.—By the <i>Campania</i> =Liverpool:	
N. Y. Commercial Co. (Fine)...	100,000
General Rubber Co. (Fine)....	25,000
Robinson & Co. (Fine).....	11,000
MARCH 7.—By the <i>President Lincoln</i> =Hamburg:	
N. Y. Commercial Co. (Fine)...	6,000
Meyer & Brown (Fine).....	2,000
MARCH 7.—By the <i>Crown of Navarre</i> =Bolívar:	
Yglesias, Lobo & Co. (Fine)...	18,500
Yglesias, Lobo & Co. (Coarse)...	3,000
MARCH 11.—By the <i>Baltic</i> =Liverpool:	
N. Y. Commercial Co. (Fine)...	30,000
L. Blitz (Fine).....	2,000
MARCH 19.—By the <i>Cymric</i> =Liverpool:	
N. Y. Commercial Co. (Fine)...	175,000

MARCH 20.—By the <i>Waldersee</i> =Hamburg:	
Meyer & Brown (Fine).....	3,500
MARCH 21.—By the <i>Winfredian</i> =Liverpool:	
N. Y. Commercial Co. (Fine)...	34,000
MARCH 25.—By the <i>Campania</i> =Liverpool:	
Raw Products Co. (Fine)....	4,500
Arnold & Zeiss (Caucho).....	34,000

OTHER NEW YORK ARRIVALS.

CENTRALS.	
POUNDS.	
FEBRUARY 23.—By the <i>Comus</i> =New Orleans:	
Manhattan Rubber Mfg. Co. ...	8,000
Robinson & Co.	6,000
Eggers & Heinlein.....	3,500
FEBRUARY 27.—By the <i>El Occidente</i> =Galveston:	
Charles T. Wilson.....	9,000
FEBRUARY 28.—By the <i>Pennsylvania</i> =Hamburg:	
New York Commercial Co.	50,000
Henderson & Korn.....	4,500
FEBRUARY 28.—By the <i>Belle</i> =Colombia:	
A. Held.....	11,000
R. Castillo & Co.	3,500
Isaac Brandon & Bros.	3,000
Maitland, Coppell & Co.	3,000
G. Amsinck & Co.	2,000
Caballero & Blanco	1,500
Wessels, Kulenkampff & Co.	1,000
Gillespie Bros. & Co.	1,000

WEEKLY MOVEMENT OF LONDON PRICES.
[IN SHILLINGS AND PENCE PER POUND.]

July, 7, 1911.....	4/2½	November 17, 1911.....	4/3
July 14.....	4/5½	November 24.....	4/3½
July 21.....	4/7	December 1.....	4/4½
July 28.....	4/8	December 8.....	4/5½
August 4.....	4/7½	December 15.....	4/4½
August 11.....	4/7½	December 22.....	4/4
August 18.....	4/7½	December 29.....	4/3½
August 25.....	4/10½	January 5, 1912.....	4/4½
September 1.....	4/8½	January 12.....	4/5½
September 8.....	4/9	January 19.....	4/5½
September 15.....	5/	January 26.....	4/8
September 22.....	4/10½	February 2.....	4/7
September 29.....	4/8	February 9.....	4/6½
October 6.....	4/7	February 16.....	4/6¾
October 13.....	4/5	February 23.....	4/7½
October 20.....	4/6½	March 1.....	4/7½
October 27.....	4/4	March 8.....	4/9
November 3.....	4/3	March 15.....	4/10½
November 10.....	4/4½	March 22.....	5/2½

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

MARCH 7.—By the steamer *Frances*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss.....	150,400	64,000	238,800	43,700	496,900
General Rubber Co.	189,300	44,600	92,200	60,300	386,400
New York Commercial Co. ...	110,600	51,200	89,100	39,700	290,600
Meyer & Brown.....	105,200	16,800	36,200	48,100	206,300
Henderson & Korn.....	6,000	700	17,900	—	24,600
Hagemeyer & Brunn.....	—	—	7,200	—	7,200
Total	561,500	177,300	481,400	191,800	1,412,000

MARCH 21.—By the steamer *Benedict*, from Manáos and Pará:

Arnold & Zeiss.....	315,600	116,900	271,200	144,500	848,200
New York Commercial Co. ...	152,400	48,900	147,800	137,400	486,500
General Rubber Co.	150,700	47,600	81,500	3,900	283,700
Meyer & Brown.....	42,500	10,400	53,400	48,700	155,000
G. Amsinck & Co.	10,400	—	16,500	—	26,900
Henderson & Korn.....	13,200	1,400	8,600	5,100	28,300
De Lagotellerie & Co.	8,200	3,600	9,200	—	21,000
Hagemeyer & Brunn.....	—	—	11,900	—	11,900
Total	693,000	228,800	600,100	339,600	1,861,500

MARCH 25.—By the steamer *Christopher*, from Manáos and Pará:

Arnold & Zeiss.....	244,300	109,300	248,100	87,100	688,800
New York Commercial Co. ...	193,900	37,600	189,700	169,600	590,800
General Rubber Co.	165,700	45,700	74,900	4,000	290,300
Meyer & Brown.....	83,400	15,500	76,000	54,200	229,100
Henderson & Korn.....	—	—	—	70,000	70,000
De Lagotellerie & Co.	13,200	1,400	9,900	—	24,500
Hagemeyer & Brunn.....	1,100	—	11,900	—	13,000
Total	701,600	209,500	610,500	384,900	1,906,500

FEBRUARY 29.—By the *Silvia*=Colon:
G. Amsinck & Co. 5,500
Andean Trading Co. 5,000

MARCH 1.—By the *New York*=London:
Arnold & Zeiss..... 11,500

MARCH 1.—By the *Orotava*=Colombia:
W. R. Grace & Co. 11,500
Isaac Brandon & Bros. 5,000
G. Amsinck & Co. 4,000
A. M. Capen's Sons..... 3,500
Roldau & Van Sickle..... 2,000
Maitland Coppell & Co. 1,500
J. Sambrada & Co. 1,000

MARCH 1.—By the *Proteus*=New Orleans: ..
Manhattan Rubber Mfg. Co. ... 8,000
Robinson & Co. 2,500
Meyer & Brown..... 2,000
Eggers & Heinlein..... 1,500

MARCH 4.—By the *Albion*=Colombia:
Maitland, Coppell & Co. 11,000
P. Ebling & Co. 1,500
Caballero & Blanco..... 1,000

MARCH 4.—By the *Mexico*=Vera Cruz:
J. W. Wilson & Co. 7,500
Harburger & Stack..... 2,500
Diamond Rubber Co. 2,500
Laguna Export Co. 2,000
Ed. Maurer..... 2,000
Laurence Johnson & Co. 2,000
H. Marquard & Co. 1,500

MARCH 1. By the <i>John L. Litch</i> Colon:		
G. Amsinck & Co.	10,000	
United Fruit Co.	1,500	
Harburger & Stack.	1,000	
Isaac Brandon & Bros.	1,000	13,500
MARCH 6. By the <i>La Munda</i> Galveston:		
Charles T. Wilson	*10,000	
MARCH 6. By the <i>Cochise</i> New Orleans:		
Eggers & Henkle	2,500	
Meyer & Brown	2,000	
L. N. Morgan & Co.	1,500	
Robinson & Co.	1,500	
Wessels, Kulenkampff & Co.	2,000	9,500
MARCH 6. By the <i>Bohemian</i> Liverpool:		
Adolph Hirsch & Co.	22,500	
MARCH 7. By the <i>Camaguey</i> Tampico:		
New York Commercial Co.	*110,000	
Continental-Mexican Rubber Co.	*77,000	
Arnold & Zeiss	*65,000	
Ed. Maurer	*40,000	
For Europe	*75,000	*367,000
MARCH 7. By the <i>Cuba</i> Colon:		
G. Amsinck & Co.	2,500	
Mecke & Co.	2,500	
American Trading Co.	2,500	
Wessels, Kulenkampff & Co.	2,000	
Lanman & Komp.	2,000	
Dunsmuir Bros. & Co.	2,000	
Charles L. Griffin	1,500	
J. J. Julia & Co.	1,500	38,500
MARCH 7. By the <i>President Lincoln</i> Hamburg:		
Ed. Maurer	*30,000	
MARCH 8. By the <i>Libania</i> Bahia:		
J. H. Rosbach & Bros.	67,000	
MARCH 8. By the <i>Anilla</i> Tampico:		
Ed. Maurer	*90,000	
For Europe	*90,000	*180,000
MARCH 9. By the <i>Esperanza</i> Frontera:		
E. Steiger & Co.	6,000	
Hermann Kluge	4,000	
Maitland, Coppell & Co.	3,000	
Harburger & Stack.	3,000	
E. Nelson Tibbals & Co.	3,000	
Silva Bussenius & Co.	1,500	
For Europe	11,500	32,000
MARCH 11. By the <i>Baltic</i> Liverpool:		
Henderson & Korn	5,500	
MARCH 12. By the <i>Momus</i> New Orleans:		
Manhattan Rubber Mfg. Co.	3,500	
Eggers & Henkle	3,000	
G. Amsinck & Co.	2,500	
Robinson & Co.	1,000	10,000
MARCH 12. By the <i>Santiago</i> Tampico:		
Ed. Maurer	*70,000	
Arnold & Zeiss	*45,000	
New York Commercial Co.	*34,000	
Charles L. Wilson	*5,000	
For Europe	*45,000	*199,000
MARCH 13. By the <i>Magdalena</i> Colombia:		
J. Sambrada & Co.	4,000	
Mecke & Co.	4,000	
G. Amsinck & Co.	2,000	
Caballero & Blanco	1,000	
Isaac Brandon & Bros.	1,000	
Gillespie Bros. & Co.	1,000	13,000
MARCH 14. By the <i>Advance</i> Colon:		
G. Amsinck & Co.	12,000	
Wessels, Kulenkampff & Co.	4,500	
Piza, Nephews & Co.	2,500	
Nicaragua Trading Co.	2,500	
Silva Bussenius & Co.	1,000	
Meyer Hecht	1,000	23,500
MARCH 16. By the <i>Seguranca</i> Tampico:		
New York Commercial Co.	*70,000	
E. J. Maurer	*65,000	
For Europe	*45,000	*180,000
MARCH 16. By the <i>Moro Castle</i> Frontera:		
Meyer & Brown	3,500	
Harburger & Stack.	3,000	
Maitland, Coppell & Co.	2,500	
H. Marquardt & Co.	1,000	
George A. Alden & Co.	1,000	
American Trading Co.	1,000	
Hermann Kluge	1,000	
For Europe	15,000	28,000
MARCH 20. By the <i>Prinz August Wilhelm</i> Colon:		
G. Amsinck & Co.	5,500	
Isaac Brandon & Bros.	3,000	
Andean Trading Co.	2,500	
Dunsmuir Bros. & Co.	1,500	
Manhattan Rubber Mfg. Co.	1,500	
Suzarte & Whitney	1,000	
Pablo Calvert & Co.	1,000	

R. Fabian & Co.	1,000	
Wessels, Kulenkampff & Co.	1,000	
A. Held	1,000	
Caballero & Blanco	1,000	20,000
MARCH 20. By the <i>Haderne</i> Hamburg:		
Ed. Maurer	*25,000	
New York Commercial Co.	*15,000	*40,000
MARCH 23. By the <i>Mercury</i> Frontera:		
Laurence Johnson & Co.	10,000	
Meyer & Brown	4,500	
L. Steiger & Co.	4,500	
Harburger & Stack.	3,500	
E. Nelson Tibbals & Co.	3,000	
General Export Comm. Co.	2,500	
George A. Alden & Co.	2,500	
Silva Bussenius & Co.	3,000	
P. A. Rubio & Co.	1,000	
H. Marquardt & Co.	1,000	
For Europe	7,000	41,500
MARCH 25. By the <i>Tennysen</i> Bahia:		
J. H. Rosbach & Bros.	30,000	
Adolph Hirsch & Co.	15,000	45,000
AFRICAN.		
POUNDS.		
FEBRUARY 26. By the <i>Celtic</i> Liverpool:		
George A. Alden & Co.	35,000	
Robinson & Co.	22,500	
James T. Johnstone	13,500	
Ed. Maurer	11,000	
Raw Products Co.	4,500	86,500
FEBRUARY 26. By the <i>Steiermark</i> Hamburg:		
Robert Badenhop	30,000	
Rubber Trading Co.	11,000	
Meyer & Brown	9,000	
Wallace L. Gough Co.	7,000	57,000
FEBRUARY 26. By the <i>Cervic</i> Liverpool:		
George A. Alden & Co.	25,000	
Ed. Maurer	7,000	
Henderson & Korn	5,500	37,500
FEBRUARY 26. By the <i>Rochambeau</i> Havre:		
Ed. Maurer	80,000	
FEBRUARY 26. By the <i>Germania</i> Lisbon:		
Meyer & Brown	11,500	
Hagemeyer & Brunn	11,500	
Wallace L. Gough Co.	11,000	34,000
FEBRUARY 28. By the <i>Pennsylvania</i> Hamburg:		
George A. Alden & Co.	120,000	
Ed. Maurer	25,000	
General Rubber Co.	13,500	
James T. Johnstone	11,500	
Henderson & Korn	5,000	
Rubber Trading Co.	7,000	182,000
FEBRUARY 28. By the <i>Kronlanda</i> Antwerp:		
Meyer & Brown	200,000	
Arnold & Zeiss	11,000	211,000
FEBRUARY 28. By the <i>Amerika</i> Hamburg:		
George A. Alden & Co.	95,000	
Ed. Maurer	25,000	
Arnold & Zeiss	18,000	
James T. Johnstone	8,000	
Wallace L. Gough Co.	8,000	154,000
MARCH 2. By the <i>Monadnock</i> Lisbon:		
Arnold & Zeiss	67,000	
Meyer & Brown	22,500	
George A. Alden & Co.	11,500	101,000
MARCH 4. By the <i>Campania</i> Liverpool:		
Ed. Maurer	22,500	
General Rubber Co.	15,000	
Arnold & Zeiss	15,000	
George A. Alden & Co.	7,000	59,500
MARCH 6. By the <i>Finland</i> Antwerp:		
Arnold & Zeiss	20,000	
Meyer & Brown	13,500	
Robinson & Co.	7,000	
L. Blitz	5,500	
Wallace L. Gough Co.	4,500	50,500
MARCH 6. By the <i>Bohemian</i> Liverpool:		
Ed. Maurer	56,000	
George A. Alden & Co.	45,000	
Robinson & Co.	15,000	
General Rubber Co.	9,000	
Meyer & Brown	3,500	128,500
MARCH 10. By the <i>Baltic</i> Liverpool:		
George A. Alden & Co.	22,500	
James T. Johnstone	7,000	
L. Blitz	3,500	33,000
MARCH 9. By the <i>President Lincoln</i> Hamburg:		
George A. Alden & Co.	30,000	
Ed. Maurer	20,000	
Rubber Trading Co.	11,000	
Meyer & Brown	15,500	
Wallace L. Gough Co.	11,500	
General Rubber Co.	7,000	
J. T. Johnstone	3,500	
Henderson & Korn	4,500	102,000

MARCH 1. By the <i>St. Louis</i> London:		
George A. Alden & Co.	15,000	
General Rubber Co.	11,000	26,000
MARCH 13. By the <i>Carolina</i> Havre:		
Meyer & Brown	15,000	
George A. Alden & Co.	3,500	18,500
MARCH 15. By the <i>Vaderland</i> Antwerp:		
Meyer & Brown	95,000	
General Rubber Co.	70,000	
Arnold & Zeiss	15,000	
L. Blitz	7,000	187,000
MARCH 15. By the <i>Niagara</i> Havre:		
Arnold & Zeiss	80,000	
Meyer & Brown	45,000	
Ed. Maurer	7,000	132,000
MARCH 18. By the <i>Lapland</i> Antwerp:		
General Rubber Co.	200,000	
Meyer & Brown	85,000	
George A. Alden & Co.	20,000	305,000
MARCH 18. By the <i>Espagne</i> Havre:		
George A. Alden & Co.	11,500	
MARCH 19. By the <i>Cymric</i> Liverpool:		
George A. Alden & Co.	50,000	
Robinson & Co.	70,000	
Meyer & Brown	20,000	
General Rubber Co.	13,500	
Henderson & Korn	11,500	
James T. Johnstone	9,000	
Ed. Maurer	5,500	
Robert Badenhop	4,500	184,000
MARCH 20. By the <i>Potsdam</i> Rotterdam:		
General Rubber Co.	22,500	
MARCH 20. By the <i>Waldsee</i> Hamburg:		
George A. Alden & Co.	55,000	
Ed. Maurer	35,000	
General Rubber Co.	13,500	
Arnold & Zeiss	11,000	
Raw Products Co.	5,500	
L. Blitz	5,000	
Meyer & Brown	5,000	130,000
MARCH 25. By the <i>Campania</i> Liverpool:		
Arnold & Zeiss	11,500	
Rubber Trading Co.	3,500	15,000
EAST INDIAN.		
POUNDS.		
FEBRUARY 26. By the <i>Celtic</i> Liverpool:		
Ed. Maurer	*15,000	
FEBRUARY 28. By the <i>Minnewaska</i> London:		
General Rubber Co.	*225,000	
New York Commercial Co.	*75,000	
Arnold & Zeiss	*45,000	
Robinson & Co.	*11,000	
Wallace L. Gough Co.	*5,500	
In transit	*56,000	
Robinson & Co.	11,500	
Raw Products Co.	8,000	437,000
FEBRUARY 27. By the <i>Minnewaska</i> London:		
Meyer & Brown	*30,000	
MARCH 1. By the <i>New York</i> London:		
New York Commercial Co.	*56,000	
Arnold & Zeiss	*34,000	
Ed. Maurer	*20,000	
Meyer & Brown	*9,000	*119,000
MARCH 2. By the <i>Kennebec</i> Singapore:		
Ed. Maurer	*11,500	
MARCH 4. By the <i>Alghan Prince</i> Singapore:		
Ed. Maurer	*27,000	
L. Littlejohn & Co.	*9,000	
New York Commercial Co.	*5,000	
Ed. Maurer	22,500	
Arnold & Zeiss	10,000	
Haebler & Co.	25,000	98,500
MARCH 6. By the <i>Finland</i> Antwerp:		
Meyer & Brown	*11,000	
MARCH 8. By the <i>Werdenfels</i> Colombo:		
Meyer & Brown	*56,000	
Robert Badenhop	*34,000	
Ed. Maurer	*11,500	
New York Commercial Co.	*11,000	*112,500
MARCH 8. By the <i>Oceanic</i> London:		
New York Commercial Co.	*90,000	
Arnold & Zeiss	*70,000	
James T. Johnstone	*22,500	
Meyer & Brown	*22,500	
Ed. Maurer	*35,000	
Henderson & Korn	*11,500	
Arnold & Zeiss	2,500	254,000
MARCH 8. By the <i>Indrawadi</i> Singapore:		
Ed. Maurer	*34,000	
L. Littlejohn & Co.	*22,000	
United Malaysian Rubber Co.	25,000	81,000

MARCH 3.—By the <i>R. de la Colonne</i> =Colon:		MARCH 3.—By the <i>Kennebec</i> =Singapore:		BALATA.	
Meyer & Brown.....	*50,000	Ed. Maurer.....	*45,000	POUNDS.	
Ed. Maurer.....	*78,000	L. Littlejohn & Co.....	*20,000	MARCH 7.—By the <i>Col n=Colon</i> :	
Robert Badenhop.....	*11,500	Haebler & Co.....	*13,500	R. Del Gallego & Co.....	2,000
G. Amsinck & Co.....	*11,500 *180,000	Wallace L. Gough Co.....	*13,500	D. A. De Lima & Co.....	1,500 3,500
MARCH 4.—By the <i>St. L. =London</i> :		New York Commercial Co.....	*9,000	MARCH 7.—By the <i>Magdalena</i> =Colon:	
Arnold & Zeiss.....	*56,000	United Malaysian Rubber Co.....	30,000	Barthling & DeLeon.....	5,500
New York Commercial Co.....	*7,000	Ed. Maurer.....	*2,000	MARCH 10.—By the <i>Magdalena</i> =Colon:	
James T. Johnstone.....	*7,000	Arnold & Zeiss.....	13,500	Earle Brothers.....	5,000
In transit.....	*30,000 *100,000	Otto Tenstein & Co.....	22,500	MARCH 20.—By the <i>Magdalena</i> =Colon:	
MARCH 11.—By the <i>Magdalena</i> =Colon:		L. Littlejohn & Co.....	13,500 204,000	Wallace L. Gough Co.....	5,000
General Rubber Co.....	22,500	GUTTA-PERCHA.		R. & J. Dick, Ltd.....	12,500 18,500
MARCH 15.—By the <i>Falls of Nith</i> =Colombo:		POUNDS.		BOSTON ARRIVALS.	
Meyer & Brown.....	*56,000	MARCH 2.—By the <i>Kennebec</i> =Singapore:		POUNDS.	
Robert Badenhop.....	*11,500	L. Littlejohn & Co.....	225,000	FEBRUARY 12.—By the <i>Indramayo</i> =Singapore:	
Arnold & Zeiss.....	*56,000	Wallace L. Gough Co.....	150,000 375,000	State Rubber Co. (Ceylon).....	45,000
MARCH 15.—By the <i>Falls of Nith</i> =Colombo:		MARCH 4.—By the <i>Afghan Prince</i> =Singapore:		L. Littlejohn & Co. (Gutta).....	35,000
Meyer & Brown.....	*100,000	L. Littlejohn & Co.....	300,000	L. Littlejohn & Co. (Jelutong).....	700,000
MARCH 16.—By the <i>Mesaba</i> =London:		Haebler & Co.....	350,000	State Rubber Co. (Jelutong).....	170,000 950,000
General Rubber Co.....	*220,000	W. R. Russell & Co.....	110,000	FEBRUARY 16.—By the <i>Bulgaria</i> =Hamburg:	
Arnold & Zeiss.....	*11,500	Wallace L. Gough Co.....	56,000 816,000	George A. Alden & Co. (African).....	4,500
Robinson & Co.....	*11,000	MARCH 8.—By the <i>Indrawadi</i> =Singapore:		FEBRUARY 24.—By the <i>Michigan</i> =London:	
Meyer & Brown.....	*11,500 *254,000	L. Littlejohn & Co.....	650,000	George A. Alden & Co. (Gutta-Percha).....	3,000
MARCH 18.—By the <i>Lupia</i> =Antwerp:		Wallace L. Gough Co.....	220,000	FEBRUARY 24.—By the <i>Kennebec</i> =Singapore:	
New York Commercial Co.....	*90,000	Haebler & Co.....	225,000	State Rubber Co. (Jelutong).....	330,000
Arnold & Zeiss.....	*5,000	W. R. Russell & Co.....	130,000	CUSTOM HOUSE STATISTICS.	
Meyer & Brown.....	*1,500 *77,000	George A. Alden & Co.....	70,000 1,315,000	PORT OF NEW YORK—FEBRUARY.	
MARCH 20.—By the <i>Olympic</i> =London:		MARCH 20.—By the <i>Potsdam</i> =Rotterdam:		Imports:	
New York Commercial Co.....	*50,000	L. Littlejohn & Co.....	100,000	India-rubber.....	11,764,589 \$9,847,919
In transit.....	*22,500 *72,500	Wallace L. Gough Co.....	80,000 180,000	Balata.....	27,295 14,324
MARCH 20.—By the <i>Waldsee</i> =Hamburg:		MARCH 21.—By the <i>Hilf</i> =Hamburg:		Guayule.....	923,566 415,778
Rubber Trading Co.....	*7,000	L. Littlejohn & Co.....	75,000	Gutta-percha.....	8,582 5,931
MARCH 20.—By the <i>Schildturm</i> =Colombo:		MARCH 21.—By the <i>Dacre Castle</i> =Singapore:		Gutta-jelutong (Pontianak).....	799,709 46,091
Meyer & Brown.....	*180,000	L. Littlejohn & Co.....	425,000	Total.....	13,523,741 \$10,330,043
New York Commercial Co.....	*45,000	Haebler & Co.....	250,000	Exports:	
Robert Badenhop.....	*25,000	Wallace L. Gough Co.....	75,000	India-rubber.....	115,865 \$91,148
G. Amsinck & Co.....	*9,000	George A. Alden & Co.....	50,000 800,000	Balata.....	27,143 14,821
Ed. Maurer.....	*7,000	MARCH 22.—By the <i>Atholl</i> =Singapore:		Guayule.....	.....
L. Blitz.....	*5,000 *271,000	L. Littlejohn & Co.....	450,000	Gutta-percha.....	.....
MARCH 21.—By the <i>Dacre Castle</i> =Singapore:		Haebler & Co.....	400,000	Reclaimed rubber.....	129,636 21,105
Ed. Maurer.....	*34,000	Wallace L. Gough Co.....	135,000	Rubber scrap, imported.....	1,828,287 \$151,222
Wallace L. Gough Co.....	*5,000	W. R. Russell & Co.....	75,000 1,060,000	Rubber scrap, exported.....	577,422 65,884
New York Commercial Co.....	*5,000	GUTTA-PERCHA.			
Ed. Maurer.....	50,000	POUNDS.			
United Malaysian Rubber Co.....	34,000 1,8,000	FEBRUARY 28.—By the <i>Amerika</i> =Hamburg:			
MARCH 21.—By the <i>Winifredian</i> =London:		Robert Soltau & Co.....	9,000		
New York Commercial Co.....	*70,000	MARCH 4.—By the <i>Afghan Prince</i> =Singapore:			
Meyer & Brown.....	*25,000	Haebler & Co.....	45,000		
Ed. Maurer.....	*90,000	MARCH 7.—By the <i>President Lincoln</i> =Hamburg:			
Arnold & Zeiss.....	*56,000	Robert Soltau & Co.....	9,000		
General Rubber Co.....	*34,000				
Robinson & Co.....	*11,000				
In transit.....	*56,000 *342,000				

EXPORTS OF INDIA-RUBBER FROM PARA FOR FEBRUARY, 1912, (IN KILOGRAMS).

NEW YORK.					EUROPE.				
EXPORTERS.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	Fine.	Medium.	Coarse.	Cauch.
Zarges, Berringer & Co.....	246,910	92,521	293,320	66,157	698,908	465,775	7,054	38,757	106,510
Ad. H. Alden, Ltd.....	85,764	27,496	73,816	62,293	249,368	239,565	25,937	99,096	20,742
Gordon & Co.....	245,227	32,459	110,840	40,345	428,871	16,003	2,074	676	13,993
Suarez Hermanos & Co., Ltd.....	.....	.....	.....	.....	.....	33,590	1,841	24,996	30,380
De Lagotellerie & Co.....	5,780	5,270	33,330	.....	44,380	17,170	.....	6,270	6,930
R. O. Ahlers & Co.....	.....	.....	.....	.....	.....	25,210	1,807	2,563	28,703
Pires, Teixeira & Co.....	11,730	1,020	20,790	.....	33,540	2,040	170	2,310	.....
Nunes Sobrinho & Co.....	1,020	.....	1,650	3,630	6,300	15,810	340	1,320	.....
Sundries.....	9,155	195	5,818	3,092	18,260	.....	.....	.....	.....
Itacoatiara, direct.....	.....	.....	.....	.....	11,890	1,970	7,243	2,893	23,996
Total, February, 1912.....	1,162,009	304,910	771,647	405,698	2,644,264	1,474,610	126,185	291,077	600,644
Total, January, 1912.....	752,317	112,959	437,915	64,926	1,368,171	1,382,605	180,547	339,253	451,773

MANAOS EXPORTS OF INDIA-RUBBER FOR FEBRUARY, 1912 (IN KILOGRAMS).

NEW YORK.					EUROPE.				
EXPORTERS—	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	Fine.	Medium.	Coarse.	Cauch.
Zarges, Orliker & Co.....	182,259	62,081	86,819	32,997	364,156	64,534	665	11,918	116,123
Adelbert H. Alden, Ltd.....	68,657	50,574	85,095	124,950	429,276	154,787	41,311	46,286	73,937
Gordon & Co.....	163,618	50,303	70,627	25,397	309,945	72,933	24,960	12,954	68,936
De Lagotellerie & Co.....	.....	.....	.....	.....	.....	31,135	2,092	2,775	150
Sawyer & Co.....	.....	.....	.....	.....	.....	21,887	2,863	5,724	.....
O. H. Ahlers & Co.....	.....	.....	.....	.....	.....	4,031	5,652	1,471	361
Sundries.....	.....	.....	.....	2,550	2,550	1,023	3,141	2,748	2,822
Total.....	514,534	162,958	242,541	185,894	1,105,927	550,330	80,684	83,876	262,329
Iquitos, direct.....	2,457	.....	610	6,967	10,034	68,198	6,420	31,383	125,705
Total, January, 1912.....	516,991	162,958	243,151	192,861	1,115,961	618,528	87,104	115,259	388,034
Total, February, 1912.....	693,997	113,367	224,019	132,277	1,163,660	754,036	128,176	145,464	319,297



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APRIL 1, 1912.

No. 1.

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TOO MUCH WAR FOR GUAYULE.

The Guayule factory of the Continental Rubber Co. of New York at Torreon, Mexico, which closed down on February 17, owing to the very unsettled condition of the country, resumed operations again last week. During the six weeks when the factory was closed, all railroad communications were stopped and all telegraphic and mail connections were practically cut off; but the company reports that no harm has been done, either to its property or to any of its employees.

The profit-sharing plan which has been under consideration by the United States Rubber Co. for some months has not yet been officially announced, although its announcement is promised within a very short time. Some references have been made to this plan in the daily press and descriptions given of it, but none of them were authoritative or contained all the features which it is said the plan will embody.

Antwerp.

RUBBER STATISTICS FOR FEBRUARY.

DETAILS.	1912.	1911.	1910.	1909.	1908.
Stocks, January 31, kilos	586,056	645,419	482,162	597,777	1,260,009
Arrivals in February	466,303	236,316	314,624	300,011	277,443
Congo sorts	331,775	172,078	434,116	184,360	255,000
Other sorts	134,528	64,238	60,508	115,651	22,443
Aggregating	1,052,359	881,735	996,786	897,788	1,537,452
Sales in February	530,403	342,528	480,252	566,355	630,348
Stocks, February 28	521,956	539,207	516,534	331,433	907,104
Arrivals since Jan. 1	787,736	786,272	776,491	583,966	825,411
Congo sorts	558,023	575,499	656,663	370,549	759,451
Other sorts	229,713	210,773	119,828	213,417	65,960
Sales since Jan. 1	940,518	835,277	801,469	848,268	925,201

RUBBER ARRIVALS FROM THE CONGO.

FEBRUARY 27.—By the steamer *Leopoldville*:

Bunge & Co. (Société Générale Africaine) kilos	89,900
Do (Chemins de fer Grand Lac)	7,806
Do (Comptoir Commercial Congolais)	11,300
Do (Cie. de Kasai)	68,300
Do (Equatoriale Congolais)	176
Do (Cie. du Lomami)	870
Société Coloniale Anversoise (Cie. du Haut Congo)	8,200
L. & W. Van de Velde (Comfina)	4,100
Do	21,000
Charles Dethier (American Congo Co.)	3,500
Wilbert Pires	3,400
Comptoir d'Etche	8,000
	300
	226,840

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to February 19, 1911 and 1912. Compiled by the Ceylon Chamber of Commerce.]

	1911.	1912.
To Great Britain	389,715	883,110
To United States	251,455	287,856
To Belgium	38,694	209,827
To Germany	3,648	13,132
To Austria		2,392
To Canada		2,242
To Japan	7,135	2,181
To Norway and Sweden		39
To Australia	6,518	

Total 697,165 1,400,779

[Same period 1910—345,410; same 1909—143,341.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

FROM—	1910.	1911.	1912.
Singapore (to Jan. 31)	252,551	664,995	973,006
Penang (to Jan. 18)	291,166	210,737	371,639
Port Swettenham (Jan. 31)	767,182	1,531,350	1,546,960
Total	1,310,899	2,407,082	3,891,605

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are in some cases slightly higher.

	April 1.
Old rubber boots and shoes—domestic	9 1/2 @ 95
Old rubber boots and shoes—foreign	9 1/4 @ 9 1/2
Pneumatic bicycle tires	4 1/2 @ 4 3/4
Automobile tires	8 1/2 @ 8 3/8
Solid rubber wagon and carriage tires	9 1/4 @ 9 3/4
White trimmed rubber	11 @ 11 1/2
Heavy black rubber	4 3/4 @ 5
Air brake hose	4 3/4 @ 5
Garden hose	1 1/4 @ 1 3/8
Fire and large hose	2 @ 2 1/4
Matting	7 1/8 @ 1

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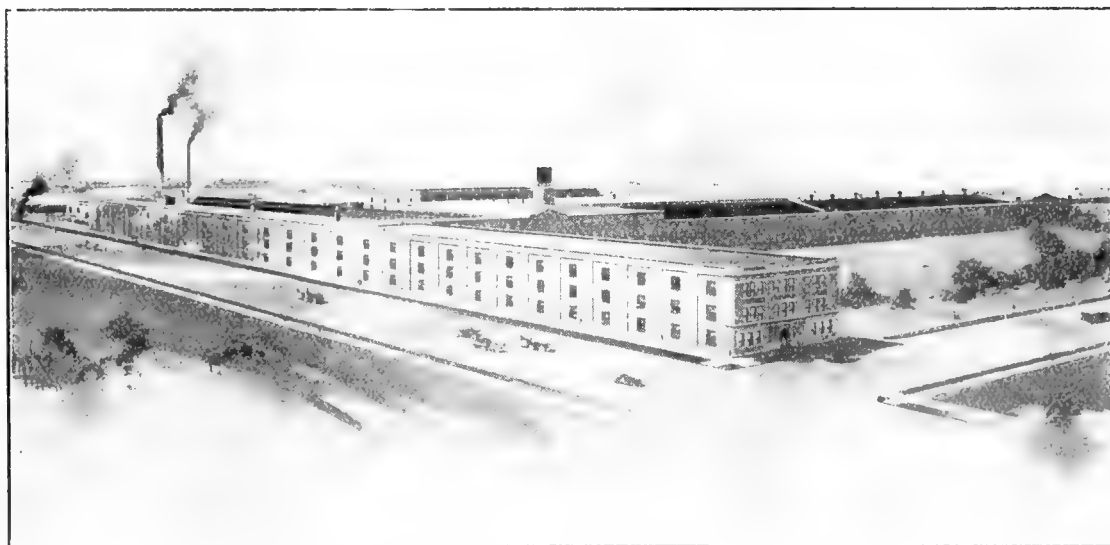
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 The Merchants Rubber Co., Limited, Berlin, Ont.
 The Berlin Rubber Manufacturing Co., Limited, Berlin, Ont.
 The Maple Leaf Rubber Co., Limited, Port Dalhousie, Ont.
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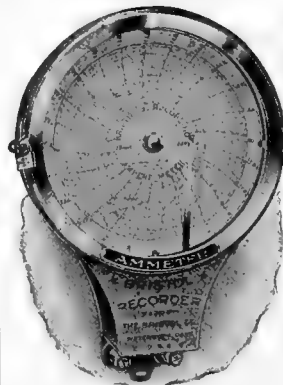
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TABLE OF CONTENTS ON LAST PAGE OF READING.**RUBBER PLANTATIONS AS CONSERVERS OF HUMAN LIFE.**

“**E**VERY ton of rubber costs a human life” is an adage that has met with general acceptance for many years as referring to the product of the Amazon country. Like most accepted adages, this has commended itself rather by reason of its epigrammatic form than because of its mathematical accuracy. The country of the Amazon produces about 40,000 tons of rubber each year. It is hardly thinkable that each year's product should cost 40,000 lives; that certainly would be an appalling slaughter. But on the other hand, in view of the known conditions of that region, it must be admitted that these figures are in all probability more than half true. It is quite likely that each year's output of rubber from the Amazon costs 20,000 human lives, perhaps more. This extreme mortality is attributable to a variety of reasons—primarily to the climatic conditions, which render it almost impossible for a white man to live in that region; to the

swamp fevers; the dreaded *beri-beri*; the wild animals, and still worse the poisonous snakes of the jungles; to the unescapable pests of mosquitoes and other insects; to the extremely unwholesome food and worse drink, the typhoid-producing water; to the feeble preventive measures so far taken and the inadequate remedial agencies hitherto employed. All of these combine to create conditions under which human life is well-nigh impossible.

Over against this compare the conditions that obtain in plantation countries, and especially in those sections where the largest and most prosperous plantations have been started. Here the laborers, or the greater part of them, live under the most sanitary conditions possible in a tropical climate. They are wholesomely fed, and given pure water to drink. They are adequately sheltered; they are protected as far as possible from mosquitoes and other disease-bearing insects; they are kept under expert medical surveillance and given prompt medical attention; with the result that they enjoy better health than laborers engaged in other occupations in the same community. In other words, in a large plantation district, rubber gathering instead of being destructive of life is a preserver of health, and a conserver of life.

If some captious critic should remark that this is not an evidence of humanitarianism but that these sanitary precautions are taken for purely commercial reasons; on the ground that a healthy coolie is more valuable than the same coolie in a continual state of incapacity, this does not alter the situation in the least. It is not necessary to make a nice analysis for the purpose of detecting just what percentage of this fortunate situation is attributable to the working of the planter's heart and how much to the operation of the planter's head. The fact remains that a plantation of rubber is as free from human sacrifice as almost any line of human endeavor.

Conditions in the wild-rubber countries, particularly along the Amazon and in Africa, are improving with each year, and the aphorism that “every ton costs a human life” is becoming a constantly less accurate statement of fact, but necessarily, from the very conditions under which wild rubber is secured, it will never be possible to render them as immune from hazard to health and life as the conditions on the plantation. The constantly increasing proportion of plantation rubber therefore not only makes for the commercial stability of the whole rubber industry, but for its humaneness.

RUBBER TREES IN TIMES OF DROUGHT.

AN exceedingly interesting demonstration has been given during the past season in the West Indies and the Guianas, of the conduct of rubber trees under conditions of severe drought. It cannot be claimed that this has been a free demonstration, for, as a matter of fact, it has been in a general way extremely expensive, but it has afforded much valuable information to rubber planters.

There has been a very severe drought, continuing for many months, throughout all the Southern group of the West Indian Islands, and covering the Northern part of the continent of South America. Some idea of its severity may be gained from the fact that for the first three months of this year the rainfall in British Guiana was less than $2\frac{1}{2}$ inches, as compared with over 20 inches for the same period last year. In the islands the cacao and banana crops have been practically ruined; in fact all vegetation seems to have suffered severely—with the one exception of rubber. The rubber trees in Trinidad and the adjacent islands appear to have gone through the drought in practically their normal condition, giving fully, or at least approximately, the same yield as in former years. In Trinidad, for instance, there are two large trees, planted many years ago, which for some time have produced an annual yield of ten pounds each; they were ready this year, each with its ten pounds of rubber, just as if the rainfall had been frequent and copious.

The exports of balata from British Guiana for the first three months of the year dropped to 23,000 pounds from nearly 73,000 pounds, the production for the same three months last year. This marked shrinkage was not because of the decreased yield of the trees, but almost wholly because the drying up of the rivers—the only means of communication between the balata forests and the export point—had rendered it impossible in many instances, and difficult in all, to send the usual expeditions to the balata camps, or to bring the rubber down to port after it had been secured.

While the meagreness of the rainfall during the last eight months has played havoc with many of the plantation activities in the West Indies and adjacent shores of South America, it certainly has given strong encouragement to rubber planters in that section, for it has proved, that in rubber, they have a tree that will weather, unimpaired in condition and in yield, a season of marked disaster to other planting industries.

THE UNHAPPY SITUATION IN MEXICO.

WHEN the long Diaz regime, which towards its end grew sadly weak and incompetent, came to a close, and Madero succeeded to the presidency of the republic, the hope was entertained that at last Mexico would enjoy immunity, or at least a respite from the internal disturbances that had so long interfered with its prosperity and its good name.

But this hope—which it must be admitted was not unattended by grave misgivings—was not destined to enjoy immediate fulfilment, for conditions have not materially improved under the new administration. In many parts of the republic lawlessness is rampant and the Federal authority treated with open contempt.

This unhappy situation is a matter for profound regret to Americans, not only because of the neighborly amity which we should feel, and which we do feel, towards the countries that touch our borders, but because of the fact that thousands of Americans are personally interested in the commercial welfare of Mexico. Millions of American money have been invested in the southern republic, in every conceivable kind of enterprise—conspicuous among them the industry of producing rubber. For the last fifteen or twenty years Americans have been investing their money in rubber plantations in Mexico, and during the last five or six years the production of guayule has assumed very large proportions. Naturally, in the chaotic condition of that country during the last two years—and particularly during the last few months—all business enterprises have languished, if they have not come utterly to a standstill; and a great many Americans have thought it the better part of discretion to abandon—temporarily at least—their property and their enterprises, and to return to this country for personal safety. We have only an inadequate idea of the condition of panic, not to say of terror, that has obtained in many sections; but enough has reached us to show that foreigners—and particularly Americans—in many parts of Mexico have done wisely to abandon their interests there for the time being. A refugee, who recently reached Galveston, stated that in the little settlement at Sanborn, where there had been a colony of eleven American families, all of them had left because, as he said, "they were afraid to remain longer, knowing that they would all be killed or tortured." There are several notable rubber plantations in the neighborhood of this little abandoned American colony, and rubber planting is subject, of course, to

the same risks and hazards as any other foreign enterprise in that country.

As President Madero owes his fortune and that of his family to the guayule industry, it might be thought that he would look with especial sympathy upon rubber ventures in that country, and probably he does; but as Mexican lawlessness is in no way due to his indisposition to suppress it, but rather to his inability, it is obvious, that whatever fellow-feeling he may have for those engaged in the enterprise in which he is personally interested, he is not in a position to render them any material assistance.

The rubber outlook in Mexico from the standpoint of natural advantages has appeared very bright, and, undoubtedly, some day it will be a noteworthy industry in that republic, but obviously it can hardly be expected that further American investments will be made in any line of rubber production in Mexico under the conditions now prevailing.

AN INTERESTING SITUATION IN THE TIRE TRADE

LAST MONTH developed an interesting, not to say dramatic, situation in the tire trade. During the first week of April there was a very general expectation throughout the trade that tire prices would be immediately advanced. There seemed so much basis for this expectation that dealers were in considerable haste to get in their orders before this advance took place. In the midst of this situation, and evidently without any fore-knowledge on the part of competitors, The B. F. Goodrich Co. made a country-wide announcement in the large city dailies of April 7, that its published list of prices to the consumer would be substantially reduced, the reduction, as a matter of fact, amounting to nearly 17 per cent. As soon as the trade had recovered its breath, there was a general movement, precipitate in some quarters and more deliberate in others, to scale prices down to, or somewhere near, the new level.

This unexpected move in materially reducing prices was explained by its initiators on the ground that the trade had practically ceased to regard seriously the old published list, and that the prices as published were being cut almost universally. It was deemed advisable, and as making for conservatism under these circumstances, to issue a new list of prices, which the dealers would have far less temptation to ignore.

While this downward price movement came unexpectedly to the trade, it could hardly occasion any sur-

prise to the student of economics, as the whole tire situation may be said to have been rather abnormal for some time past. The tremendous demand for tires had made it possible to put the industry on a basis of exceptional profits. This situation naturally invited extensive competition and greatly increased the sources of supply. It is simply the oft-repeated phenomenon of supply overtaking demand, with the natural consequence of a diminution of profits to a point more nearly in harmony with the normal returns in other manufacturing lines.

THOSE AUTO TIRES FROM THE SPINELESS CACTUS.

THE bane of every scientist is the unveracious reporter, who is simply after a "good story," quite regardless of any consideration of facts. A short while ago a great many of the daily papers contained a thrilling recital to the effect that Mr. Luther Burbank, the famous Californian who has achieved such wonders in the plant world, had discovered a certain cactus, from the leaf of which could be made automobile tires, print paper, unlimited paint and other useful commodities. Here is a sample paragraph taken from a most reliable Massachusetts paper:

"MAKE AUTO TIRES OF CACTUS LEAVES.

"Santa Rosa, Cal.—Luther Burbank, addressing the California State Fruit Growers' convention here, made the startling announcement of a wonderful discovery in the further use of his famous spineless cactus. He says it will revolutionize the whitewash, paint and automobile tire industries. Burbank said he had discovered that the fiber of the plant was an excellent substitute for rubber in the manufacture of automobile tires. He added that this same fiber would also be an excellent substitute for wood pulp in the manufacture of paper."

Some accounts went into minute details in describing the reception accorded Mr. Burbank's announcement of his discovery. A leading Maine journal thus portrayed the scene:

"When Mr. Burbank had reached this point in his talk before the congress he had every delegate crowding forward toward the platform taking notes and firing questions at him. But the excitement then was nothing compared to the interest manifest when he announced that after the mucilage had been taken from the cactus leaves for the whitewash and paint the fiber could be converted into print paper and into automobile tires.

"The fiber of the spineless plant is excellent as a substitute for rubber used in the present tires, said the

horticulturist, and he declared his belief that it would make tires far more durable."

We were interested to discover how much truth, if any, there might lie at the bottom of these accounts. Accordingly we wrote Mr. Burbank as follows: "You are reported as having discovered a spineless cactus which would serve as an excellent substitute for rubber in the manufacture of automobile tires. We would be very glad indeed to get any information on this point or any expression of your opinion as to the possibility of such substitution." We immediately received his reply, which we give below:

"TO THE EDITOR OF THE INDIA RUBBER WORLD.

"DEAR SIR: The half crazy reporter of a daily paper is responsible for the misinformation given out as coming from here. In other countries, I judge a newspaper publishing it would be a subject for legal suit, but here it would only end in more blackmail.

"Very little of the matter reported is true. I have never said a word indicating that the cactus produced anything suitable for automobile tires.

"Regretting that insane reporters are allowed to be at large, I remain,

Respectfully yours,

"LUTHER BURBANK.

"Santa Rosa, California."

We sympathize heartily with Mr. Burbank in his regret "that insane reporters are allowed to be at large," but until some means can be discovered for curtailing their activities, they will doubtless continue to attribute incredible discoveries to scientists of repute—to the great annoyance of the scientist and to the constant increase of the amount of misinformation that readers of the daily press are called upon to absorb. For the scientist there seems to be no redress; but for the reader there is this redress, that he can absolutely refuse credence to all extraordinary "scientific" offerings in the daily press, until their verification shall reach him through more serious channels.

THIS YEAR'S MALAYAN PROGRESS.

CABLE returns supplementing the figures to March 7, quoted in another column, indicate that the first quarter of the current year shows rubber exports from the Federated Malay States to have been almost double those for the corresponding period of 1911, in the same proportion as those of 1911 exceeded the figures of 1910. The exact quantities as officially stated by the Malay States Information Agency, London, are:

	1910.	1911.	1912
January ...pounds	768,743	1,329,170	2,730,576
February.....	728,458	1,490,849	2,715,767
March.....	899,383	1,916,219	3,089,583
Total.....	2,396,584	4,736,238	8,535,926

THE CALCULATION OF RUBBER GOODS.

IN calculating the selling prices of goods, it is not merely necessary to provide for contingencies which are likely to arise, but also to make allowances for claims which, although not foreseen and perhaps not in themselves justified, it may be politic to allow, in view of future business.

To such claims as these the rubber industry is specially liable; particularly in cases where a certain efficiency is guaranteed, such as the mileage of motor tires. Although a prudent manufacturer will not guarantee more than he knows by experience, his tires will stand, he may be quite innocently confronted by a claim due to overloading or to careless driving, but which he is not in a position to prove was thus caused. Tires frequently suffer by trucks being driven over freshly graveled surfaces, or from other avoidable sources of injury.

Another difficulty is that mileage records are not in all cases reliable. In some instances the mileage is furnished by the chauffeurs. In other cases, where automatic registers are used, those appliances are liable to get out of order through the oscillations and concussions to which they are subjected. Thus a margin for such claims should form a part of any calculation.

Whenever a penalty is stipulated for failure to deliver punctually, a percentage should be included to represent this ever-present risk. Apart from the dangers of fires, strikes or the break-down of machinery, where the work is done in one factory or department, there is the risk of delay from those causes in the receipt of materials from elsewhere. All these points need to be foreseen and provided for.

Nor are manufacturing operations free from unforeseen risks. This is particularly the case with the waste in manufacture; unexpected losses from that source equally applying to hand and machine production.

Each class of rubber goods, whether mechanical or technical articles, tires, clothing, etc., has its special inherent risks.

Rubber goods manufacturers, recognizing the fact that however much in the right they may be, disputes will cloud their reputation, often submit to unjust claims in order to keep on good terms with customers whose recommendation is valued. But, as Herr Alfred Lutz, the German rubber expert, remarks, a manufacturer who acts in a conciliatory spirit under such circumstances, should get better prices than one who adopts a contrary policy. This result can only be attained by making such eventualities factors in the calculation of selling prices.

Glimpses of Rubber Lands.

By the Editor of "The India Rubber World."

St. Thomas and Its One Famous Product; Bluebeard's Castle.—St. Croix—Sugar, Coconuts and Piety; An Ancient Pirate.—Antigua—Beautiful St. John; Flourishing Manihots.—St. Lucia—Castilloas, the Fer-de-Lance.—Dominica—Healthful, Fertile—Heveas, Sapium, Funtumias—Low-Priced Land, Cheap Labor.—Martinique—Mont Pelée; St. Pierre.—Guadeloupe—Healthful and Fertile—La Soufrière—Favorable Conditions for Rubber.—Off to Trinidad.

A VERY pleasant way to visit the real tropics is to go by the way of the Danish, British and French West Indian Islands to Barbados, then on to whatever portion of the Torrid Americas one has in mind. The following brief paragraphs are submitted as a brief guide to those who may have some of these islands in mind as possibly suitable for rubber growing:

ST. THOMAS.

One reason that I stopped at St. Thomas was that it is a port of call on the way to the islands that do something, if not a great deal, in rubber growing. Another, a perhaps more potent one, was that I had received a package of seeds no one was able to identify, but which when macerated contained a percentage of rubber, and they had been posted from St. Thomas.

The water journey had been rough, and when we slipped into the beautifully protected harbor of Charlotte Amalie and dropped anchor in water as calm as a mill pond, the contrast was as pleasing as it was striking. It was just at nightfall and with no breeze, not a ripple on the water, hardly any noise on sea or shore, ordinary conversation on our boat seemed grotesquely loud and one was tempted to whisper. The little town evidently goes to sleep soon after sunset, but it wakes up early in the morning, and it was then that we went ashore. We had an excellent breakfast at the clean little hotel, and then started out to get light on the rubber-containing seeds. It did not take long to discover that wherever they came from, they did not come from that island. The knowledge of its productions is very complete, largely because they are so few. Indeed, the only product of any note is the cheap and world-famous bay rum, and neither the bay nor the rum is a St. Thomas product.

Of course we visited Bluebeard's Castle, a half ruined stone tower, set up on the hillside overlooking the bay, a relic of the days of the buccaneers. The hardy

old pirate, who was the possessor of seventeen wives, so our dusky guide informed us, was finally captured, put in a barrel lined with bristling knives and rolled down the steep hill into the sea. He was so much cut up by this treatment that he never returned. Our ten-year-old informant with rolling eyes and dramatic gesture, also described a tunnel running from the castle far out under the harbor, its ancient purpose being the blowing up of unsuspecting merchantmen anchored in the bay.

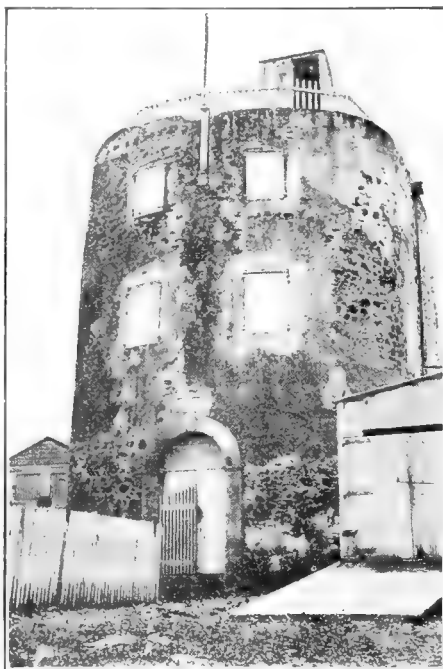
We attempted to bribe the boy to show us the tunnel, but his horrified stories of "ghosts' groans an' clankin' chain" frightened us off. Besides no one knew where the mouth of the tunnel was. These dime novel delights were so wearing that we forebore to visit Blackbeard's Castle on the other side of the town, but went timidly to the boat landing and hurried for refuge to the steamer.

There is another interesting feature in St. Thomas, that is, to Americans, which is the fact that Denmark almost unloaded the island upon the United States, and its colored and partly colored population of 13,000 came very near being American citizens. These St. Thomasites, all of whom speak English, and not Danish, deeply resent the slight put upon them by Uncle Sam, and are very apt to accuse every visiting American of being party to it. During my brief visit I apologized to several score indignant citizens and promised at the first opportunity to use my influence to have the decision reversed.

ST. CROIX.

Another nearby Danish possession is Santa Cruz, ordinarily called Saint Croix, an island that is as fertile as St. Thomas is barren. Sugar and coconuts are the chief products here, a by-product being the well-

known Santa Cruz rum. We landed at Fredericksted and spent some time in doing the neat little town, chatting with all the natives and incidentally attending church, for the "Domine," an Episcopal clergyman on our boat, had been invited to assist at the service. There is no hotel in the town, but there are four churches, and the whole population attends. The audiences are very black and very devout. The streets of Fredericksted are very clean, the town thrifty,

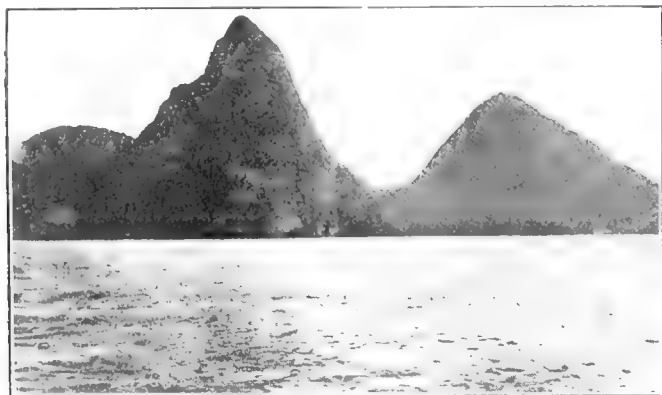


BLUEBEARD'S CASTLE, ST. THOMAS.



HARBOR OF ST. THOMAS (TOWN OF CHARLOTTE AMALIE IN FOREGROUND).

and the Danish soldiers in bright blue coats and white trousers art stiffly picturesque. There was anchored in the harbor a schooner, which could it speak would have been able to tell some very thrilling tales. Used today as a freighter between Fred-



THE PHONS, ST. LUCIA

ericksted and Christensted it looked very harmless, yet in the olden days it had been pirate, slave-trader and blockade runner. It was 127 years old and still sound, and could outsail anything in those waters.

St. Croix is one of the most American of the Carribean islands; 40 per cent. of the inhabitants have been in the United States. Many of the great sugar estates are owned by Americans; one company alone possesses between forty and fifty of them. Although Danish is taught in the schools, the people refuse to use it and speak English. They also long to be Americans.

Although it undoubtedly would have flourished there, rubber has not been essayed at St. Croix; that is, I could find no record

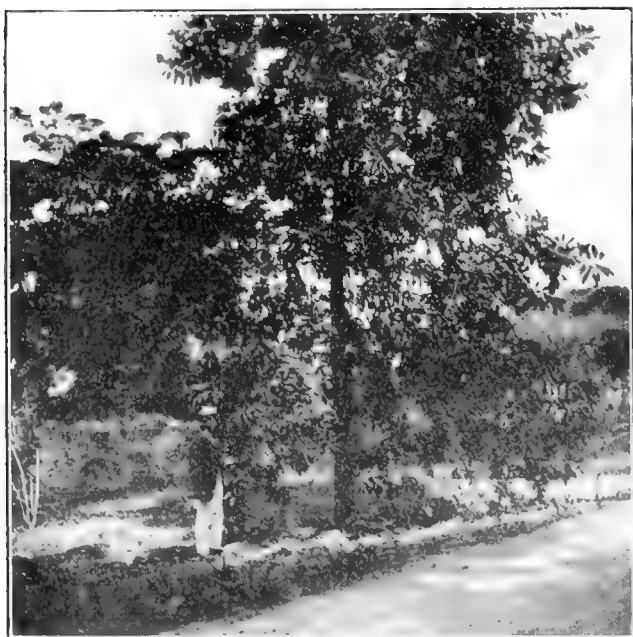
has nearly 20,000 acres under cultivation, mostly in sugar-cane. It is very picturesque, partly of coral formation, partly volcanic; and the harbor of St. John, if only an entrance were made through the reef at the mouth, would be magnificent. As it is,



ST. JOHN, ANTIGUA.

the big boats anchor three miles out and passengers and baggage go ashore in a steam launch. The narrow entrance to the harbor is guarded by two ancient forts set high up on picturesque rocks.

The city is exceedingly beautiful with its setting of royal palms, its broad verandah houses and the many dainty bungalows perched on the surrounding hills. The Botanic Gardens and Experiment Station were among the first places visited. Of the rubber trees growing there, *Castilloa Elastica*, although four years old, was only about three feet high, and gave no promise of doing better. This was perhaps due to the abundant West Indian scale upon it. Of *Heveas*, none of those planted were left, all having died as soon as planted. The few *Funtumias* has reached the height



LARGE *Castilloa* AT DOMINICA.

of rubber planting and doubt if anything has been done along that line. We left Fredericksted at noon, coasting along the green shores of the island and finally turning into the teeth of a stiff easterly wind, headed for Antigua.

ANTIGUA.

Antigua is really a very important island, and is the residence of the Governor-in-Chief of the Leeward Federal Colony. It



Manihot Dichotoma, 3 YEARS OLD, ANTIGUA.

of about twenty feet, but they were poor specimens, and would never amount to much. The *Manihot Glaziovii* were strong and healthy and gave evidence of having found a climate that suited them. The *Manihot Dichotoma* had just been introduced some eight months before, the seed being obtained from Ceylon. Those grown from seed were four to five feet high, while numbers grown from slips taken from these plants averaged two feet.

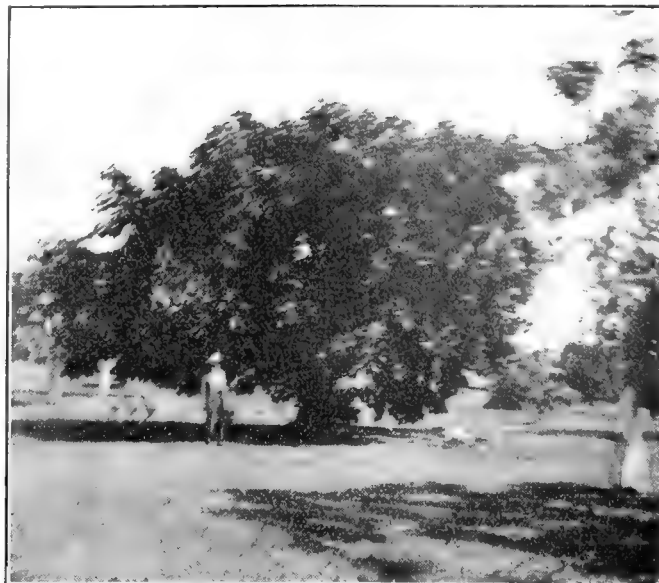
We were fortunate in meeting Mr. Jackson, curator of the Gardens, who gave us much information regarding rubber experiments, successful and unsuccessful. He seemed to believe that so far the *Dichotoma* showed the most promise, and that there was the possibility that some day Antigua might do some-

fact that he had forsaken the land of the footlights and was happy in his quiet tropical enterprise was in itself an instance of the adaptability of the modern Anglo-Saxon.

Castries, the port at which we landed, is unusually level for a



AT THE EXPERIMENT STATION, ANTIGUA.



LARGE *Ficus*, BOTANICAL GARDENS, ANTIGUA.

thing with it on a commercial scale. Certainly with a rainfall of from thirty to fifty inches and often times a prolonged drought no other of the rubber producers were to be seriously considered.

St. John is very healthful, has fine stores, a good hotel, is well governed, excellently policed and one of the pleasantest towns in the West India Islands.

ST. LUCIA.

When you enter the beautiful harbor of St. Lucia, by the big empty fort that guards the entrance, and tie up at the pier, be sure that it is raining, or else get ashore at once and far from the pier, for it is here the steamers take on coal, the work being done by hundreds of husky blacks of both sexes, and the soft coal dust is very penetrating.

St. Lucia has the best natural equipment of any of the islands for rubber manufacture. It has a plantation of *Castilloas*, a

mountain of fine chalky earth and a great deposit of sulphur. Apparently all that would be needed is a factory and an expert compounder. To be sure, the rubber plantation is not yet mature enough to produce, but that is only a detail. Sulphur is being worked by a New York company, the head of which is an American, who once was manager for Joseph Jefferson. I became very well acquainted with him and his stories of life upon the island, native idiosyncrasies, and of that poisonous and dreaded serpent, the Fer-de-Lance, were most interesting. He was possessed of a gentle humor and a manner that really was suggestive of Jefferson himself, and the

West Indian city, has broad streets and a prosperous look. It is a British naval station and therefore very strongly fortified. The city is not healthful and at night is practically deserted. There is a Botanic Station in Castries and we saw some large *Castilloas* and a huge *Ficus Elastica*. Rubber planting had not much hold there; indeed this island, which has excellent soil and a wonderful climate, is only slightly developed. The interior contains thousands of acres of Crown Lands open for settlement, but the alleged unhealthfulness, together with the presence of the deadly Fer-de-Lance, has led settlers to choose places free from such drawbacks.

DOMINICA.

Dominica is really tropical, mountainous, rugged and fertile. Although only 29 miles long and 16 miles wide, it has 70,000 acres under cultivation. The interior of the island is still covered with virgin forests. A roadway suitable for horseback

riding encircles the island and several bridle paths cross it. This island is volcanic, and cacao, limes, coffee and spices are produced in great abundance. In spite of the heavy rainfall, 80 to 200 inches, it is extremely healthful. Insect pests, poisonous reptiles and even malarial mosqui-



CASTRIES, ST. LUCIA.

tos are conspicuous by their absence. The people, of course, are black, except about 1 per cent. of whites, and the capital, Roseau, is an enterprising modern little city.

A diminutive black boy insisted on guiding us to the Botanic Gardens, and amazed us with his knowledge of botanical names. Here we saw some hundreds of *Castilloas*. There was also an

immense *Ficus Elastica*, 19 years old, which had been tapped for the first time some three years ago, and had given about three pounds of excellent rubber. The department has distributed many thousands of *Castilloas* to the planters on the island, and there were numbers of fine plantations in embryo. We happened into the Botanic Gardens just as Mr. Jones, the curator, was overseeing the tapping of some *Castilloas*. This was accomplished by



A DOMINICAN VILLAGE.

horizontal chisel cuts, the latex flowing down into a palm leaf apron, caught around the base of the tree, and draining from that into a pan. Coagulation was effected by boiling.

There were also *Heveas*, 20 to 30 feet high, eight months old and 6 inches in diameter; some *Sapum Jenmani* and *Sapum Acuparium*, eight years old; a fine *Ficus Vogelii*, nine years old; a *Mascarenhasia Elastica*, 20 feet high; *Landolphias*, *Funtumias*, *Mimusops* and other rubber and gutta producers. Indeed, in no botanic gardens that I had visited was there such a variety of thrifty, full-grown rubber producers as was found there. Of course many of these trees have only a problematic value, and the planters were not planting them. But many plantations throughout the island were planting *Hevea*, and with cheaper labor, good soil and an ideal climate should do well with it. There is the possibility of hurricanes, but the island has not had one for fifty years, and insurance companies give very fair odds against the appearance of one.

A fine State highway, 18 miles long, from Roseau to the fertile interior of the island, traversing some of the most picturesque and beautiful valleys in the world, is projected and will soon be an accomplished fact. With land at \$2.50 per acre, and



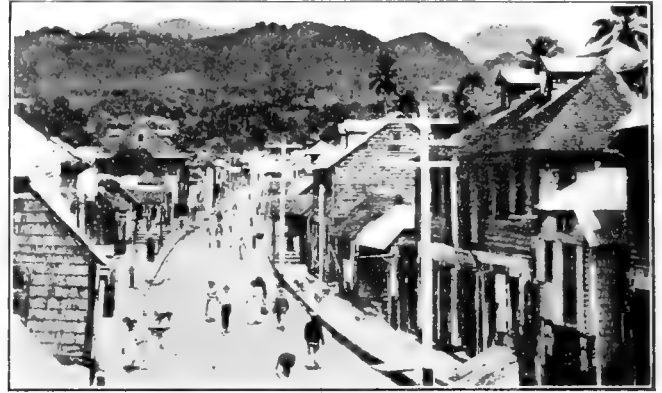
BOTANICAL STATION NO. 2, DOMINICA.

labor at 30 to 36 cents per day, the country thus made accessible is sure to be turned into plantations, and rubber is equally sure to be one of the products.

MARTINIQUE.

Everyone is interested in Martinique, and those who can, have a look at Mont Pélée. The view is apt to be unsatisfactory, how-

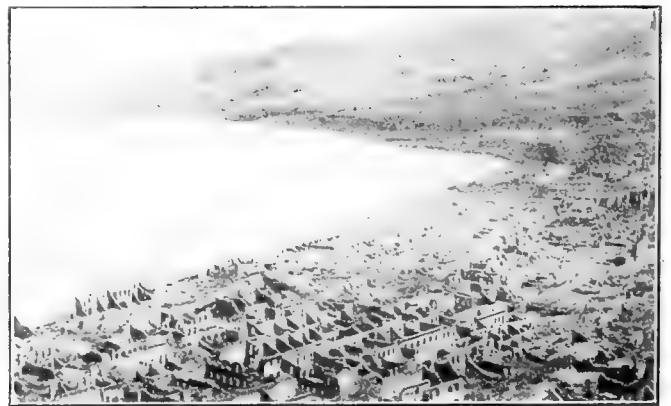
ever, as the top of the mountain, where the crater wrought so much damage, is almost always hidden by heavy rain clouds. Several times I had passed it close in shore without a view of the summit. One never-to-be-forgotten time, however, the clouds suddenly lifted and drifted away and the cinnamon brown peak with the obelisk outlined clearly against the sky was startlingly apparent. It was in the afternoon, and the light was just right,



MARKET STREET, ROSEAU, DOMINICA.

so that even without the aid of glasses we could plainly see the seamed and riven slopes scored by molten lava and torrential rains, the whole upper half suggesting a convulsion of nature suddenly petrified. Before the eruption the mountain was clothed with a tropical jungle almost to its top. After it, everything green had disappeared from the mountain and the slopes that led down to St. Pierre. The undaunted tropical growths, however, are again struggling up the scarred rocks, choking the ravines and blotting out all trace of the disaster. The hardy native fishermen have also returned, and their little settlements are scattered along the shore, even in the shadow of the mountain. St. Pierre, however, still lies in ruins. The wrecks of its beautiful buildings are covered with tropical growth, the home of the Fer-de-Lance, avoided by all but the most intrepid of tourists.

The port of call for the steamboats is Fort de France, with a magnificent harbor well protected and plenty of deep water. Three French men-of-war anchored there were indulging in target practice, using Maxims, while we were there, and they made wonderful scores, counting the times they missed. The



RUINS OF ST. PIERRE, MARTINIQUE.

city is not particularly safe after nightfall, and the boatmen untrustworthy and surly. A Baltimore negro served as guide and showed us the big market, the best we had yet seen, and the regulation city sights.

There is some rubber in Martinique and there is no reason why there should not be a great deal, as much of the land is suitable

for its cultivation. On the great Imperial road that runs for some six miles out from Fort de France, the shade trees are *Heveas*, *Castilloas* and *Funtumias*. The two first named did not look particularly thrifty, but the *Funtumias* had grown luxuriantly, and would do well if rid of the scale which is beginning to attack them.

Martinique in a way is very modern. The people accept Amer-



CAMP BALATA, MARTINIQUE.

ican money very readily, and there are good carriage roads to various parts of the island. Travellers have no difficulty in finding entertainment at the various plantations, and the country is really safer and pleasanter than the city.

GUADELOUPE.

Through coral islets and over coral reefs into the land-locked harbor of Guadeloupe we came early one morning. Our landing place was the town of Basse Terre, which we found to be quite a large place. It was exceedingly French in architecture and general appearance, and anything but French in its lack of cleanliness. We did the town in a little ramshackle carriage, the horse on the dead run, in spite of our wish to go a little slower that we might observe the customs of the place. The outlying districts were exceedingly pretty and were crowded with country negroes



THE VOLCANO "LA SOUFRIERE," GUADELOUPE.

coming to market, and also lined with exceedingly persistent beggars. Guadeloupe is healthful, fertile, and has one semi-quiescent volcano, La Soufrière, which emits sulphurous fumes in abundance. The average temperature is from 68 degs. to 70 degs. Cocoa, coffee and cotton are raised, and rubber could be cultivated, although as far as we could learn nothing had

been done in that direction. Leaving this last of the French islands we were really started for Trinidad and its rubber plantations.

THE PASSING OF THE CARRIAGE.

THE march of progress is an exceedingly interesting phenomenon to contemplate, but it is often rather hard on the things that happen to be in its way. For instance, there is the automobile, which is undoubtedly a great blessing to humanity, and has opened up vistas of activity never before dreamed of; but it has hit the carriage trade exceedingly hard.

A dozen years ago the section of New York lying along Seventh avenue and Broadway, north of Long Acre Square, was given over to the carriage trade. This trade had originally started far downtown, but as society moved uptown the shapely Victorias and Broughams and ornate and expensive harnesses that society demanded moved uptown also, to accompany the handsome thoroughbred, until they finally found convenient and suitable quarters in the district just mentioned. But a stroll through those streets now shows how great a change has taken place. Either the carriage builders, who ten years ago had large and handsomely equipped exhibition rooms have disappeared, or, as it is the case with the leaders in that industry, they have swung over into the ranks of the enemy and gone zealously into the production of automobiles. A wonderful change has taken place, too, in the physical aspect of that section. Where ten years ago there were little one-story blacksmith shops, which naturally associated themselves with the more pretentious horse and carriage markets, there are now imposing ten and twelve-story buildings, devoted exclusively to the display and sale of automobiles, tires and other accessories.

There is being erected at present, on what hitherto has been only a vacant lot, a 20-story building, the first 5 floors of which are to be utilized exclusively in the exploitation of tires.

It was only some two years ago, or perhaps less, that the first taxicabs appeared in our large cities; now they have almost driven the horse-drawn cab off the streets, and the man with a hansom cab that he wishes to dispose of will find himself fortunate if he can get one-tenth its original cost.

The huge commercial trucks, used by wholesale grocers, brewers, and in other lines of business demanding the local transportation of large volumes of heavy goods, are being very rapidly displaced by the motor truck. The construction of horse-drawn vehicles of every description is rapidly declining and must necessarily continue to decline; for it is simply a case of the survival of the fittest. The motor is more efficient, more reliable and more economical than the horse, and as far as concerns the greater part of the city work which the horse has hitherto done, he will have to yield to his all-conquering gasoline rival.

SOME MORE "ASBESTOS" BURNS.

There seems to be a good deal of trouble in various localities in Maine with so-called asbestos fire protection. The latest report comes from Lewiston to the effect that the proprietor of a local foundry purchased some "asbestos paper"—guaranteed to be fireproof—to place around one of the furnaces in order to protect the adjacent wood work. A few hours after this "asbestos" fire-proofed paper was placed near the furnace it was all ablaze, which would seem to indicate that it was more paper than asbestos.

David Bridge & Co., Manchester, England, who have been known for many years as general suppliers of rubber machinery, are now manufacturing a full line of rubber reclaiming machines, covering every sort of machine used in this business.

The Rubber Industry and the Census of 1909.

ALTHOUGH complete figures are not yet available for the United States Census of 1909, THE INDIA RUBBER WORLD is enabled (through the courtesy of the Bureau of the Census) to present general results of an approximate character.

Table A shows the comparative figures for the three census years 1899, 1904 and 1909, under the three main divisions: belting and hose, woven and rubber; rubber boots and shoes; and rubber goods not elsewhere specified. The figures are shown for the number of establishments and hands, as well as for the principal elements of cost and the value of products.

In the aggregate the 1909 production of the three above-named distinctive forms of the rubber industry represented \$202,886,000, against which may be counted: Wages, \$25,620,000; salaries, \$8,205,000; materials, \$126,274,000; general expenses (estimated), \$10,000,000. These four items make a total of \$170,099,000.

These figures would show an aggregate difference of \$32,787,000 between cost and net value, or about 19½ per cent. on the outlay.

Making a rough approximation of the separate amounts, the following results are obtained (in millions of dollars):

	Belting and Hose.	Boots and Shoes.	Other Goods.	Total.
Value of products.....	25	50	128	203
Elements of cost.....	19½	42½	108	170
Difference estimated.....	5½	7½	20	33
Equalling about.....	27%	17%	18½%	19½%

The compilation of results shown by the census tables, makes no allowance for interest on capital, and is necessarily of an approximate character, being founded on returns made in

a more or less exact manner to the special visiting agents of the census authorities.

While it is as yet uncertain whether any closer tabulation will be presented of the 128 million dollars' worth of unspecified rubber goods, it is to be hoped that the importance of the rubber industry will be regarded as meriting such consideration on the part of the census authorities.

Meanwhile, apart from the distinctive rubber industries, in which rubber is used to a large extent, there are a number of industries in which that material is more or less employed, which also call for reference, although the proportion of rubber they use cannot be exactly stated. The aggregate production of these accessory industries is shown in table B as \$126,404,000; a proportion of which requires to be added to the total for distinctive rubber industries in table A (\$202,886,000) to arrive at the importance of rubber manufacturing as an element of national industry.

Taking the grand totals of the direct and accessory branches of rubber manufacture, the following results are obtained for the census years 1899, 1904 and 1909:

	Value of Products.		
	1899.	1904.	1909.
Table A (direct rubber industries)	\$100,598,000	\$129,132,000	\$202,886,000
Table B (accessory industries)	49,212,000	80,848,000	126,404,000

Progress all along the line thus marks the development of rubber and kindred industries during the three census periods of which the results are presented.

A dissection of the figures of production by States is being prepared and will be dealt with at a later date.

TABLE A.
SUMMARY OF CENSUS RESULTS OF DISTINCTIVE RUBBER INDUSTRIES.

	Number of Establishments.			Capital.			Horse Power.			Wage Earners (average number).		
	1899.	1904.	1909.	1899.	1904.	1909.	1899.	1904.	1909.	1899.	1904.	1909.
Belting and Hose (woven and rubber)	25	39	46	\$6,020,000	\$15,909,000	\$24,260,000	5,612	13,491	20,547	2,025	4,390	6,319
Rubber Boots and Shoes.....	22	22	22	33,668,000	39,442,000	43,905,000	25,017	26,084	25,903	14,391	18,991	17,612
Rubber goods not elsewhere specified	261	224	227	39,302,000	46,298,000	98,507,000	40,835	48,381	79,062	20,404	21,184	26,521
Total	308	285	295	\$78,990,000	\$101,649,000	\$166,672,000	71,464	87,956	125,512	36,820	44,565	50,452
	Wages.			Salaries.			Cost of Materials.			Value of Product.		
	1899. \$	1904. \$	1909. \$	1899. \$	1904. \$	1909. \$	1899. \$	1904. \$	1909. \$	1899. \$	1904. \$	1909. \$
Belting and Hose (woven and rubber).....	982,000	2,057,000	2,956,000	380,000	984,000	1,384,000	4,528,000	10,787,000	14,505,000	6,886,000	17,791,000	24,729,000
Rubber Boots and Shoes.....	6,427,000	8,867,000	8,544,000	597,000	874,000	1,415,000	22,683,000	32,000,000	29,577,000	41,090,000	48,345,000*	49,721,000
Rubber Goods not elsewhere specified	8,082,000	9,412,000	14,120,000	1,216,000	2,857,000	5,406,000	33,482,000	38,912,000	82,192,000	52,622,000	62,996,000	128,436,000
Total	15,491,000	20,336,000	25,620,000	3,193,000	4,715,000	8,205,000	60,693,000	81,699,000	126,274,000	100,598,000	129,132,000	202,886,000

*Estimated.

TABLE B.

VALUE OF PRODUCTION OF PRINCIPAL ACCESSORY INDUSTRIES IN WHICH RUBBER IS USED.

	1899.	1904.	1909.
Insulated wires and cables.....	\$21,292,000	\$34,520,000	\$51,625,000
Buttons	7,696,000	11,134,000	23,708,000
Dentists' materials	3,721,000	7,810,000	10,836,000
Hand stamps, stencils and bands....	2,611,000	2,811,000	3,673,000
Pens (fountain, stylographic, etc.)...	1,706,000	2,774,000	4,739,000
Steam packing	3,494,000	8,952,000	12,160,000
Surgical appliances and artificial limbs	4,682,000	7,269,000	12,399,000
Toys and games.....	4,010,000	5,578,000	8,264,000
Total	\$49,212,000	\$80,848,000	\$126,404,000

HOW THE CENSUS WAS TAKEN.

The United States government took great pains to obtain the fullest possible information from every manufacturing plant in the country. A carefully prepared schedule was drawn up, specially dealing with the items affecting manufacturing costs. This schedule was sent in advance to every factory, and in due time a corps of special agents (selected by competitive examination) was set to work, calling on the various factories, explaining the questions asked and seeing that the answers given were fairly accurate. These agents were men of local knowledge and statistical experience, not merely "enumerators." The results shown by annexed figures may therefore be considered reliable.

THE STORAGE OF RUBBER CEMENT.

WITH a costly product like rubber cement the prevention of waste is a matter of considerable moment. It is important that every gallon purchased should be used, and this result cannot be attained when the wooden barrel, which has served for transportation, is then utilized for storage. The staves being porous, they become warped through changes in temperature, while this defect is further increased by rough handling. The barrel is not and cannot be made airtight, so that its contents solidify through the evaporation of the thinning liquid.

This loss represents 20 per cent. per week, so that at the end of that period 100 gallons of cement only represent 80 gallons. It is claimed that all this loss can be stopped by using a "Bowser" equipment; so that the buyer of fifty gallons, by transferring that quantity, when received to the Bowser tank, can absolutely count on using fifty gallons.

Such a result is obtained by the possibility of ensuring the delivery of any desired quantity, by setting the indicator to the quantity desired, when a single stroke of the pump handle delivers just the amount needed.

A particularly valuable feature of the Bowser system is the absence of the risk of fire. Up to the present, firemen have been afraid to go near a fire in a cement house where the ordinary methods of handling cement are in use, while they now fight fire alongside of a Bowser equipment without the least fear. This system has the unqualified endorsement of insurance experts.

Its operation is shown in the subjoined cuts; Fig. 2 illustrating its detailed arrangement, while in Fig. 1 the cement is stored in a separate building, but handled in the factory instead of in the cement room.

The "Self-Measuring Rubber Cement Tank" is made by S. F. Bowser & Co., Fort Wayne, Indiana.

According to Consul Report 8472, a firm in Germany wishes to get in touch with American manufacturers and exporters of rubber abdominal and other bandages and rubber stockings.

GUTTA-PERCHA-TISSUE CEMENT.

IT was at a meeting of shoe men, and a shoe manufacturer was speaking on the subject of "Efficiency." Most of his talk was on the proper adjustment of machinery, but one point he made may be of interest to the readers of THE INDIA RUBBER WORLD.

Shoe manufacturers have for years been in the habit of "backing" the finer, thinner qualities of leather, by cementing strong cloth to the under side, to give greater strength and thickness, and to prevent stretching. This Western manufacturer, some years ago, found that case after case of shoes had been returned to him because the solvent in the rubber cement had penetrated the cloth, and not only stained the lining, but collected dust and dirt.

"It was up to me," he said, "to stop that trouble. At that time I had a suit of clothes repaired at my tailors.

I saw him take a little strip of gutta-percha, thin as tissue paper, and iron it between the thicknesses of cloth in the hem of my trousers, sticking them together, where stitches would have shown badly. This solved my problem. I got some of that gutta-percha, and backed my leather. You Yankees afterwards came out to sell us backing cloth, and we bought it, but up to that time we

made our own backing cloth. We copied that from the tailor, long before you ever sold it."

The use of gutta-percha tissue was for years confined almost exclusively to the tailoring trade. Today it has a wider use, many trades utilizing it because of its efficiency and convenience. Hat makers use it to stick labels in their hats. Box makers find it convenient in making velvet-lined cases. The metal cases for holding spectacles and eye-glasses have their velvet linings and the leather coverings cemented with this tissue. For all these

purposes it is less messy than glue, more adhesive than paste, and less likely to penetrate than rubber cement.

For many years all of this material used in this country was imported from Germany, but American manufacturers experimented, and after many failures, and at a very considerable expenditure of money, its production has been a success in this



PLATE 1. MODEL RUBBER CEMENT STORAGE SYSTEM.

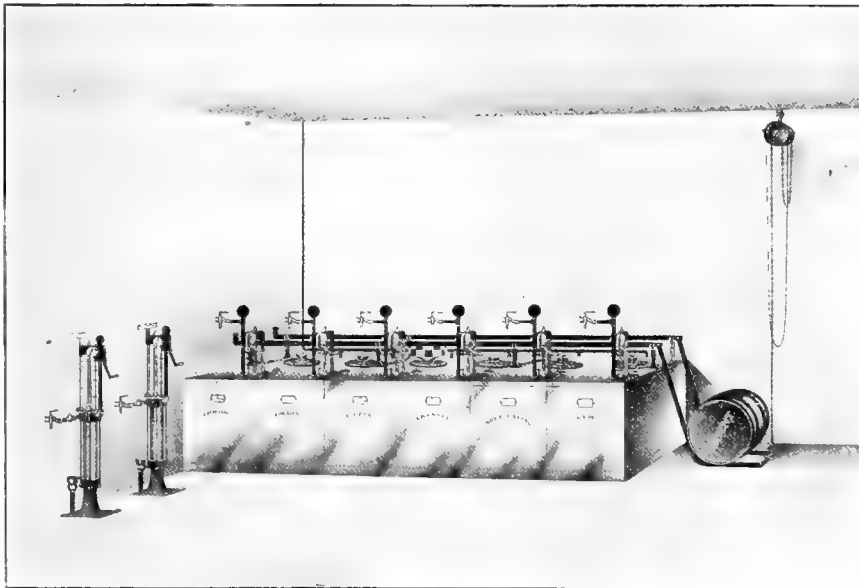


PLATE 2. MODEL RUBBER CEMENT STORAGE SYSTEM.

country, and a recent consular report says that Germany now exports practically none to America, its trade being entirely destroyed by American competition.

Notwithstanding its wide use, the manufacture is confined to but few houses. There are now two houses in New York and one in Boston which have succeeded in producing a really effective and satisfactory article, and these supply the entire demand.

As might well be imagined, the exact composition of this adhesive is a carefully guarded secret. Broadly stated, however, it is a compound of gutta-percha and other guttas and balata, the former giving adhesiveness and the latter strength. The gums are thoroughly mixed, gently heated and kneaded to the consistency of a somewhat thin dough, by being run through and through heated cylinders, and then pressed out between polished steel calender rolls so adjusted as to give the resulting sheet the desired thickness. This runs from one and one-half thousandths of an inch (.0015 in.) to four or five thousandths of an inch (.004 to .005 in.).

The material comes from this machine in a continuous sheet, a yard wide, and this is suspended for a proper length of time, to thoroughly season. It is then put up in the various forms desired by the trade. One style of package is much the same shape as a bolt of dress goods. The yard-wide tissue is folded in yard lengths back and forth, one hundred yards in a pile, and then each side of the pile is folded towards the middle, and one-half folded over the other. In this form it is sold at about 65 to 75 cents a pound, according to quality. The various thicknesses run from four to twelve yards to the pound. Other forms in which it is marketed are rolls, like ribbon, of any desired width, according to the purpose for which it is to be used.

One important use of this tissue is in the manufacture of the backing cloth mentioned above. A sheet of this tissue and a thickness of drilling, or cotton cloth, are run together, under pressure, between heated calenders. This is sold to shoe manufacturers, who back up their light leather by hand. Other houses make a business of backing leather or fine cloths for the shoe trade, the work being done on machines which are not open to the inspection of the public.

New uses are constantly being found for this cement, its cleanliness, convenience, pliability and absence of moisture being properties which commend it to many mechanical trades.

A NOVEL USE FOR RUBBER CEMENT.

PRESENT-DAY illustrating has made the use of the air-brush almost universal among artists because of the extreme delicacy of the effects produced and the facility with which it produces them. A novel use of rubber cement has been discovered in connection with the use of this tool, which may be of interest to the trade.

The air-brush is a modification of the well-known principle of the atomizer, adapted to throw a fine spray of thin ink as the artist directs to produce the effect desired. A finer or coarser line may be made by holding the tool nearer to or further from the paper, and a tint can be spread over a large surface and shaded, from the merest, lightest gray to the deepest black, by proper manipulation and adjustment.

After the outlines of a drawing have been made and properly inked in, it is frequently desirable to put in the tints and shades with the air-brush, and yet these shades must be kept from those portions of the drawing which represent the high lights.

Some artist discovered that rubber cement, thinned down with benzine, would hold two pieces of paper together as would paste or mucilage, yet these sheets could be easily separated when desired, even after several hours' contact. This discovery is now put to very practical use by many artists and draughtsmen.

Upon the unfinished drawing is poured a small quantity of this

thinned cement, which is then spread with the finger. Over this is pressed and smoothed down a piece of tracing paper, thus covering, but not hiding the drawing. Then, with a sharp knife, skilfully used, sections of the tracing paper are cut around, and these pieces raised and removed so as to expose those portions which are to be finished with the air-brush. Then the spraying is done, without the danger of overlapping the lights, and with an obvious saving of time and trouble. This work being done in a satisfactory manner, the mask of tracing paper is easily peeled off and the drawing finished up as desired.

Of course, a fine film of rubber remains upon the face of the drawing. This is easily and quickly removed by simply rubbing with the finger, or with an ordinary sponge rubber eraser, the cement being rubbed into little rolls or threads, and leaving on the drawing no trace of the treatment to which it has been subjected, in this somewhat mechanical manner, to secure an artistic result.

In this connection it might be well to state that where variation of shade or tint is desired, as, for instance, a spot or line of high light in the tint or shade, the rubber eraser, deftly used, brings out the effect quickly and satisfactorily.

The cement used for this purpose is common bicycle tire cement, thinned down with benzine, to the consistency of cream or syrup. We understand that a preparation of this kind—in fact, this identical mixture—was for some time exploited under a fanciful name by a couple of artists, who succeeded in working up a fair demand for it, but who had too little of the commercial temperament in their make-up to continue and expand the business.

A SAMPLE OF A RUBBER MAN'S ART.

THE advertising manager of the Republic Rubber Co., Web Brown, is also a cartoonist of some note. At the recent convention of fire chiefs of the United States and Canada he drew a number of pictures of the leading men at that convention which attracted a good deal of attention. We reproduce herewith his picture entitled "A Night Alarm at Bradford, Pa.," which shows



A NIGHT ALARM AT BRADFORD PA.

the fire department of that city in active operation. The rings that appear back of the moving machine would naturally be taken for tires that had not been able to keep up the pace were it not that there are five of them while the machine has only four wheels. They are probably only punctures made in the atmosphere by the rapid movement of the engine. The usual fire department mascot will be seen galloping swiftly in the foreground.

The Rubber Sundries Manufacturers' Association.

THE annual meeting of the Rubber Sundries Manufacturers' Association was held this year on April 11, in the directors' room of the Motor and Accessory Manufacturers' Association in New York, and was followed by the usual annual banquet at the Waldorf-Astoria in the evening.

At the business meeting held in the morning the following officers were elected for the coming year: George B. Hodgman, president of the Hodgman Rubber Co., president; Frederick H. Jones, president of the Tyer Rubber Co., vice-president, and E. E. Huber, of Eberhard Faber, secretary and treasurer.

The officers of the association hoped for the presence of Mr. Henry C. Pearson, editor of THE INDIA RUBBER WORLD, as their guest, as Mr. Pearson has been present at each of the banquets for a number of years past, but as he had not returned to New York it was decided to make the banquet an informal family affair. The table was set in the form of a square, open at one end, opposite the presiding officer, and the floral decorations were red carnations, with a mass of smilax covering the sides of the table toward the center of the square.

On the printed menu, about half way down, was printed a black dash, with question marks at either end, which aroused some curiosity on the part of those in attendance, until that part of the dinner indicated by the mark was reached, when President Hodgman arose and announced that, contrary to the usual custom observed in the past, there would be no speeches whatever, and that the entertainment for the evening would consist of a "Cabaret" performance, which is so popular at many of the restaurants at the present time. This statement was received with much apparent satisfaction, and from this point on during the remainder of the dinner and the rest of the evening, the members of the association and their guests were entertained by a number of artists who are now appearing at various well-known

places in New York. From the opinions expressed by the diners at the close of the dinner it was evident that the innovation had been a very successful departure from precedent, and a vote of thanks was extended to the dinner committee for providing such a unique and enjoyable banquet.

Here is the menu, with the interrogative line that ushered in the Cabaret:

MENU.

	❖	
	Cocktail aux huitres	
	❖	
	Potage d'oseille à la Française	
	❖	
Radis	Olives	Céleri Amandes salées
	❖	
	Filet de bass à la Mornay	
	Salade de concombres et tomates	
	❖	
	Poitrine de dinde farcie, sauce diablé	
	Haricots verts sautés au beurre	
	Pommes de terre, Laurette	
	❖	
	Sorbet prunele	
	— — — — —	
	Pigconneau de Philadelphie rôti sur canapé	
	Salade de laitue à la Russe	
	❖	
	Plombière aux marrons, sauce vanille	
	Petits fours	Fruits
	Café	

POMMERY SEC
The Waldorf-Astoria,

le 11 Avril, 1912.



BANQUET OF THE RUBBER SUNDRIES MANUFACTURERS' ASSOCIATION.

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

RUBBER stocks in Akron have been very active again this last month. The directors of The Goodyear Tire and Rubber Co. took definite action on the proposed refinancing. The new capital will be ten million common and five million preferred, of which five million common and two million preferred will be issued, leaving five million common and three million preferred in the treasury. The present capital is \$2,500,000 common, of which \$2,284,100 is outstanding and one million preferred is outstanding. The present holders of common will get 100 per cent. common bonus and the right to subscribe for \$341,800 of new common at par. The old preferred is to be retired at 105, and holders have the right to subscribe for the new preferred, share for share, at par, after which rights to the new preferred revert to the common stock. The new preferred is 7 per cent. cumulative, and is retirable after 1915 at 120. In the meantime the five million common and three million preferred held in the treasury will be used for the best interests of the company. It is not stated what dividend the new stock will pay. The new capital seems well within the range of the earning power of the company. The old Goodyear common has been selling at from 450 to 460.

Diamond Rubber stock has been selling at from 320 to 325. The new Goodrich preferred is over-subscribed, it is claimed, for nearly double the amount of stock. Firestone common has been selling in the neighborhood of 246, and Miller at 166 to 168.

The B. F. Goodrich Co. has just paid the regular quarterly dividend on both common and preferred. The Diamond Rubber Co. quarterly dividends were paid on the 20th, and Firestone common and preferred were paid April 15. The Swinehart quarterly dividends will be paid the fore part of May.

This new stock issue of the Goodyear is subject to the approval of stockholders at an early meeting. It, no doubt, will be approved.

The B. F. Goodrich Co. has published a neat and instructive catalog covering the Pacific Coast service. This gives photographs of points of interest along the Pacific Coast, pictures of each of the persons in the various branch offices, the various routes, pictures of crowds attending the "Tree-to-Tire" entertainments, and illustrations of the advantages of Goodrich tires.

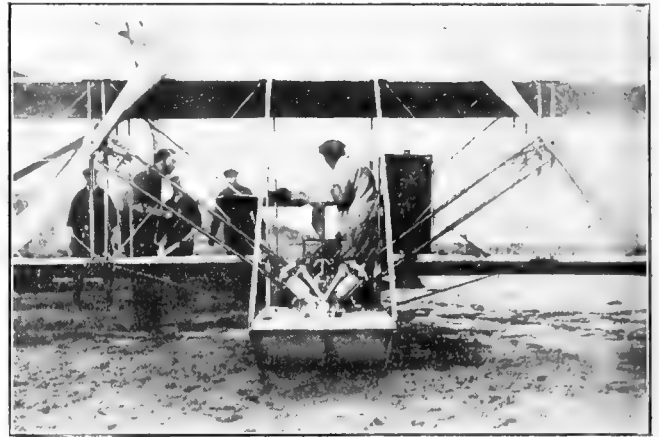
The Goodyear Tire and Rubber Co. is establishing a branch in the City of Mexico, having leased a three-story building at the corner of Avenida Juarez and Baldaras. J. C. MacFaydean, formerly in charge of the Indianapolis branch, will have charge of the Mexico City branch. S. F. Fuller will be secretary and treasurer.

Mr. Edward C. Newbower, who for several years has been connected with The Standard Tire Protector Co. of Akron, is manager of their branch in San Francisco, California.

The American Tire and Rubber Co. have commenced active operations and have a complete plant. They have been having success in the sales of their five-minute cure cement and are strengthening their inner tubes between the beads and where they come in contact with the rim, thus making that part of the tube which suffers the most wear, more able to withstand it. It is claimed that its construction, together with its toughness, prevents the tube from becoming pinched between the bead of the casing and holds it vise-like; a rusty and uneven rim causing blow-outs and in general shortening the life of the tube.

Mr. F. H. Mason, vice-president of The B. F. Goodrich Co., donated 20 acres to the city of Akron for playground purposes, and in addition agreed to donate to the city \$3,000 per year for three years towards its maintenance, provided the city would

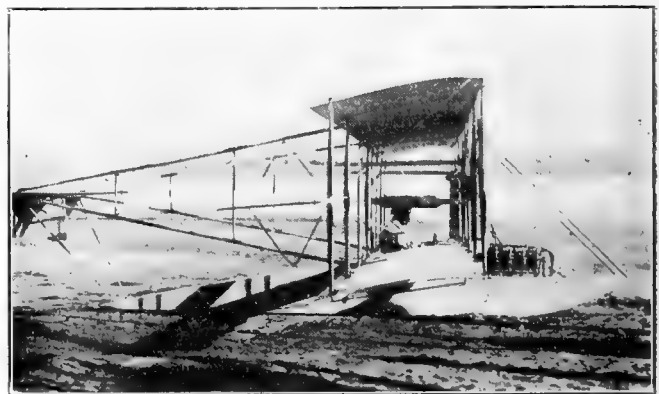
improve the property so it could be used this summer. This offer was accepted. This land is located along the Little Cuyahoga River Valley between Lods and North streets, and within a mile of the center of Akron. This park is to be called Elizabeth Park, in memory of his daughter, who died recently, and is suitably located, this being a residence district for people of



CURTIS HYDRO-AEROPLANE AT SAN DIEGO, CAL.

limited means where a park that will give bathing, skating and room for all athletic games will be very beneficial and highly appreciated. Mr. Mason is highly praised for his generous gift.

Melvin Vaniman has spent the winter rebuilding and repairing the balloon "Akron," which will have neither a wire envelope nor a rubber bag. The "Akron" will make the trip across the ocean as soon as there is assurance of good weather. Mr. F. A. Seiberling, president of The Goodyear Tire and Rubber Co., announces that he will manufacture and market the recent invention of Mr. Vaniman which solves the problem of equilibrium of the dirigible balloon. Mr. Seiberling says: "I believe Mr. Vaniman's invention is practical and sane and will make an airship safe as far as equilibrium is concerned. We will manufacture these rubber bags, which will be the air ballast of the dirig-



SIDE VIEW OF CURTIS HYDRO-AEROPLANE.

ible, as soon as the minor details are worked out. These machines are practical and can carry freight as well as passengers."

Are the aeroplane and hydroplane practical?—The success of Lieutenant T. Gordon Ellyson and John T. Powers in flying an aeroplane over Chesapeake Bay from Annapolis to Buckroe Beach, a distance of 145 miles in 147 minutes, and the fact that Glenn H. Curtiss daily in his school at San Diego, California, is enabled with his hydro-aeroplane to rise from the water, securing almost any altitude desired, landing at times on a wharf or

on board vessels, developing a speed in the air of as high as 70 miles per hour, and on the surface of the water, as high as 45 miles per hour, give conclusive proof of the practical nature of the hydro-aeroplane. This proof has been further strengthened by the fact that Lieutenant Ellyson and J. T. Powers, in their trip down Chesapeake Bay stopped their engine and allowed the hydro-aeroplane to settle on the water, and then changed the gear to the propellor shaft and ran the machine ashore; and by the exhibitions given at over 200 American cities, flying at times when the weather conditions were decidedly adverse. These achievements demonstrate the advisability of the use of the hydro-aeroplane as an auxiliary to naval vessels for recognizance and conveying dispatches, and for light transportation in war and for attacks from overhead. The governments most advanced in naval architecture have taken a decided step in exploiting the use of these machines. Even the Russian government has ordered hydro-aeroplanes to further Russia's military and naval power.

The high efficiency of the present aeroplane and hydro-aeroplane is due partly to the great care on the part of the various rubber manufacturers to secure the highest quality of rubber goods that is possible to be made for aerial purposes.

* * *

The original research work carried on in the various Akron factories, in rubber and articles entering into rubber goods, is equal to, if it does not surpass, the greatest universities, not only in this country, but also abroad. Experts are obtained not only from this country, but from foreign countries along the various lines that enter into rubber goods. These men are masters in their line. Although within the hum of the machinery, their research is carried on as exclusively as if they were in the laboratories of the great American, German or English universities, where they secured their original training. This is not only true of the composition of rubber and its compounding, but is true of the cotton fibre, wire and the various other elements that enter into rubber manufacture. Not only are these experts em-

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

TRADE is very generally satisfactory in this city. In some lines it opened late, owing to climatic conditions, but, as a rule, all lines are now busy. Particularly so is the tire business, which never showed such large sales in the first quarter of any previous year. The spring has been backward, but sales of hose, both of the garden variety and for industrial and fire use, are reported excellent. Belting sales are fair, and though the tendency is toward smaller orders, the aggregate business is satisfactory. Druggists' hard and soft rubber goods seem to be having a boom, if the present busy condition of the factories is any criterion. Boots and shoes have been ordered in larger quantities and further in advance than in the last few years, for two reasons; first, because of the long lingering of winter in the lap of spring, and second, the change back to the former policy of allowing an extra 5 per cent. discount for early orders.

* * *

The annual meeting of the Rubber Club of America, called for Monday, April 15, at the office of the Hood Rubber Co., was attended by only a few members. It was adjourned without doing any business, the election of officers being deferred until the adjourned meeting. This action was taken in the hope that at this later date ex-President Henry C. Pearson would be present and tell his fellow members of his recent trip up the Orinoco River, and illustrate his talk with lantern slides from photographs taken on the trip.

* * *

At the office of the Tremont Rubber Co. in this city there is being shown a special rubber boot manufactured by the L. Candee & Co. for the Japanese trade. It is quite a little shorter than the regular short boot, a No. 4, measuring 12 inches high from heel to top. Every customer grabs this boot and asks about the new style as soon as he sees it, and explanations are so frequently called for that it is suggested that a full descriptive ticket be attached to save repetition.

* * *

The new headquarters of the Beacon Falls Rubber Shoe Co. are being put into proper shape for the business of the house. The first floor has been lowered to a few inches above the street level, the brick dead-wall on Purchase street has been entirely replaced by plate glass windows, and a new front shown on the Congress street side. Manager Gray will have an establishment to be proud of when he moves in next month.

* * *

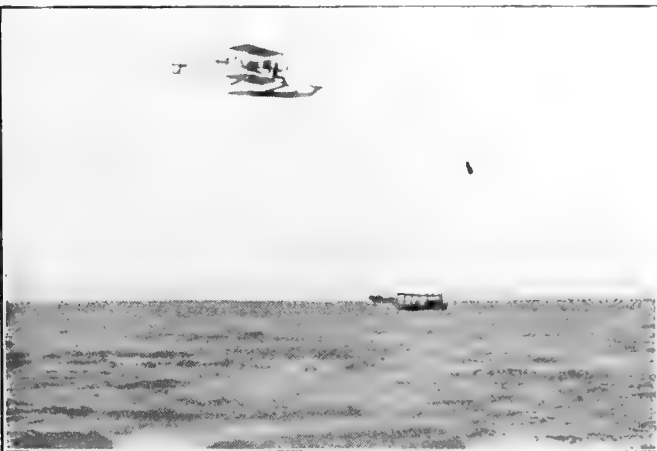
The Boston Belting Co. has appointed a new manager for the New York office, Mr. W. E. Greene, who was formerly with the W. Bingham Co., Chicago. He has already assumed his new position.

* * *

Frank Appleton is a busy man these days. His factory is turning old rubber into new and the demand for his product keeps him hustling. But in addition to this, which is enough to keep half a dozen men busy, he is preparing to take a hundred or more members of the Ancient and Honorable Artillery to Europe next month. They will dine with King George the Fifth and a number of lesser notabilities in England, and then make a tour of continental Europe. Mr. Appleton is preparing a few speeches for the prandial occasions, and studying foreign languages so as to talk shop to fellow members of the rubber and reclaiming trade abroad.

* * *

There are now on exhibition at the Museum of Fine Arts in this city the successful competitive designs for the tile decoration of the children's room at the Forsyth Dental Infirmary, that noble memorial to the well-known rubber men of that name. The designs chosen are "Roxbury Giant," "Rip Van Winkle" and "Hiawatha," by Miss Florence Lilly Young of Boston, who re-



CURTIS HYDRO-AEROPLANE OVER SAN DIEGO BAY, CAL.

played to aid the factory in the technical work, but other specialists are employed to aid the purchasing and sales departments. Men are hired in these factories who are able to talk and interpret practically every language spoken by civilized nations, whether it be the language of the coolie of Bombay, the Spaniard of Mexico, the Japanese of Yokohama, the Portuguese of South America, the Russian of St. Petersburg or Odessa, the Chinaman of Peking or Hongkong, or the Brazilian along the Amazon.

* * *

E. W. Snyder, the chemist of The American Tire and Rubber Co., has obtained success in compounding Pará and mineral rubber. This company is using his method of splicing by steam curing, thus strengthening the splice.

ceived therefor the first prize of \$250; "Jason and the Golden Fleece," by R. C. Chase of New York, who won \$150 as the second prize, and "The Blue Bird," by H. H. Parker, of Philadelphia, third prize, \$100. The children will enjoy studying these familiar subjects while waiting to avail themselves of the noble charity instituted by the Forsyth family.

* * *

Walking down Congress street the other day with a friend, THE INDIA RUBBER WORLD correspondent noticed a wagonload of discarded automobile tires in front of the storehouse of J. H. Stedman & Co. Wishing to show off some of his technical knowledge, the correspondent asked his friend if he knew where all these bursted tires go to in the end. The answer was explicit, immediate and emphatic. This friend said, "No, I'm not sure where they go; but if they go where their owners consign them, there must be a horrible smell of burning rubber in the hereafter."

* * *

The Walpole Rubber Co. has opened a handsome new store in "Automobile Row," at 757 Boylston street, where they are carrying a full line of automobile tires and accessories.

* * *

The walls of the office of a gentleman prominent in the rubber business in this city are adorned with many large photographs, each artistically framed. A very large proportion of these photographs are of groups of members of the New England Rubber Club and the Rubber Club of America, depicting them at the summer outings or the mid-winter dinners. While commenting upon these, the gentleman declared that he had made his last purchase of a picture of this kind. He had covered his walls and had room for no more.

His remarks regarding the enterprise of photographers were interesting, and one suggestion seems particularly sensible. He said: "These pictures are entirely too large. Their first cost, supplemented by the expense of framing, is too much, and they require much wall space. Then their general sameness is such that only one or two should be exhibited in a room as small as this. I like to have such photographs as souvenirs. They contain faces of my friends in the trade, some of whom are gone from among us. I believe that the photographers would sell more pictures if they made smaller ones and charged proportionately less. If they made prints about 8 x 10 inches, instead of these four times as large, the pictures could be pasted consecutively in a scrap book, or could be mounted on thin cardboard and held in a port-folio or binder, thus making a valuable record, easy to handle and not so large as to prevent its being carefully kept and frequently studied. I would like such a collection, but I'm done buying these big pictures."

The suggestion seems to have in it several grains of common sense, and your correspondent echoes the sentiment. He also suggests that anyone who may wish to prepare such an album or folio may be enabled to do so by collecting the excellent half-tone engravings of these (and other) trade gatherings which appear in THE INDIA RUBBER WORLD, usually in the number immediately following such meetings.

REAL RUBBER NEWS FROM KANSAS.

A recent issue of a Kansas daily contained some real rubber news. It stated that "the first cost of crude rubber is about 75 cents a pound. By the time it reaches the world's market it is worth \$2.50 a pound." It will be seen from this that manufacturers who have recently been grumbling because fine Upriver Pará cost them \$1.23 per pound are really in great luck, as they are getting their rubber at less than half price. It then goes on to state that there are 10 rubber trusts in the world, five of them in the United States. If this is true, it would seem to indicate that there is still work for Mr. Wickersham.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

GEORGE P. SHEPARD, secretary of the E. F. Norton Co., 620 Orleans street, narrowly escaped injury in an automobile accident on the occasion of the Birkenstein fire, which occurred April 6. He was dining in the downtown district when erroneously informed that the Norton company's establishment was on fire. While making a hurried trip to the scene in his automobile, the machine skidded while making the turn at Orleans and Indiana streets, throwing him to the street. Except for a few bruises he escaped without injury.

* * *

General Manager Baldwin, of the Cincinnati Rubber Manufacturing Co., was a recent visitor in Chicago, calling on the trade. He was more than pleased with business conditions in Chicago. H. G. Prigge, local sales agent for the company, with headquarters at West Jackson boulevard and Jefferson street, predicts a record-breaking summer season for the trade in this city.

* * *

Chicago friends of John H. Kelly, for nine years manager of the Chicago branch of the Republic Rubber Co., are congratulating him and wishing him success as sales manager of the company, to which office he was recently permanently appointed on the death of L. J. Lomasney, former vice-president and sales manager of the concern. Mr. Lomasney had been ill for several months and Mr. Kelly was made acting sales manager.

* * *

The Seal Tire Co., of Chicago, recently moved into new quarters at 1409 Michigan avenue. N. L. Steinberg, president of the company, announced that he is preparing to take care of an unusually large amount of business this season.

* * *

Because of the successful sale of the Dahl tire filler in Illinois, the board of directors of the Punctureless Tire Co., of Illinois, at a recent meeting concluded arrangements with the parent company whereby the local company takes over the entire State of Indiana. General Manager C. J. Hagerling was enthusiastic over the new step. "I feel," he said, "that the highest tribute that can be paid to the Dahl punctureless tires is the constantly increasing number of sales we are making to prominent men, who, after carefully considering the matter of tire troubles and delays, have placed their orders for our tires."

* * *

E. B. McKay, Chicago manager for the Empire Tire Co., announces that there is to be no cut in prices so far as his company is concerned. He said that under no circumstances would the company sell direct to the consumer. "Our goods are staple the world over," he said, "and our prices will be the same as they have always been."

* * *

Returning from a three months' trip to the company's branches throughout the Western and Northwestern States, H. B. Ball, auditor of the Goodyear Tire & Rubber Co., stopped long enough in Chicago to give his opinion of the effect of the opening of the Panama Canal on business in the far West. "It is looked forward to by business men with enthusiasm," he said. "There exists a friendly rivalry between Seattle, Portland and Tacoma as to which city will make the best proposition to Eastern capitalists for the building of immense new docks on the Pacific Coast. In San Francisco open-air meetings are held almost nightly, and lobbyists have been appointed to attend Congress and solicit support of the bill for free tollage of American ships through the canal, and the taxation of foreign vessels. Pacific Coast merchants expect the West Coast to be the front rather than the back door of the continent."

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

APRIL closed with the rubber business in excellent condition in Rhode Island. Stock-taking was rushed by several concerns; one applied to the State Legislature for authority to increase its capital stock, and another sought permission from the same body to bridge a Providence street to provide for an enlargement of its plant. Faith in the immediate future and plans for an expansion of facilities for production are thus generally evident.

The Phillips Insulated Wire Co. was the concern which had a bill introduced into the General Assembly for the purpose of amending its charter so as to increase its capital stock from \$2,000,000 to \$2,500,000. The bill was referred to the Senate Committee on Corporations. It is stated by those in a position to know that it will be passed without opposition. The company has not, it is understood, any plans which call for an immediate expenditure of such a large amount of money, but the business is increasing so rapidly that an enlargement of its plant at Pawtucket, Rhode Island, is looked for. Ten thousand shares of the new issue are to be preferred stock, and 15,000 shares common stock. The pending bill, when passed, will permit the board of directors to issue this stock in quantities to suit itself, at any time after the new State tax thereon has been paid to the general treasurer.

The Revere Rubber Co., a branch of the United States Tire Co., is another concern which has a bill in the Legislature. This company has secured legislative permission to erect a bridge across Eagle street. The measure was introduced by Senator Jones of Cranston. It is understood that the company intends to erect a large storehouse opposite its plant for the purpose of taking care of its surplus stock and materials used in tire manufacture, and has plans for the connection of the two by a bridge at the second story, so as to secure a connection between them that will not interfere with traffic on Eagle street.

The American Wringer Co. at Woonsocket recently reduced its number of working hours from 60 to 56 per week, at the same time leaving the pay of its employes the same as it was before. This amounts virtually to a 7 per cent. increase in wages. Several meetings of the employes have been held lately. It is rumored that they intend to form a union and make a demand for an increase in wages.

Professor Walter P. Bradley, of Wesleyan University, has been invited by the United States Rubber Co. to devote the next year to organizing a department of research for the company, with headquarters at New Brunswick, New Jersey. Professor Bradley has been head of the department of chemistry at this university for twenty-two years.

Stock-taking at the National India Rubber Co.'s plant, Bristol, was started on April 1 and finished on April 6. The factory was reopened on April 8 with its full complement of 1,800 hands working. While account of the stock was being taken about 100 men were retained to make needed repairs on the buildings and machinery.

It is expected that the plans for the reorganization of the Consumers' Rubber Co., Bristol, which has been in the hands of a receiver since early in January, will be finished soon, and that the concern will be taken over by another company, which will issue certificates of indebtedness. All but two of the Bristol creditors have signified their willingness to place their affairs in the hands of the committee in charge of the reorganization, and many in other places have followed their example. The new

company will receive the 17 per cent. allowed by the court on claims.

Knives used by men for cutting rubber have figured quite prominently in courts in this vicinity during the past two weeks. In one of the lower courts of Providence a man charged with assault with a dangerous weapon was acquitted. The court would not entertain a complaint that one of these knives could be considered a concealed weapon.

Another case of the same kind developed at Woonsocket, when Patrick O'Malley, a bootmaker in the employ of the Millville Rubber Works, was stabbed by an Italian fellow-worker. His condition again called attention to the habit of carrying these knives about, and, as a result, the police may attempt to prosecute the owners under concealed weapon charges.

For the benefit of the employes of the rubber and other plants at Bristol, an eight-day anti-tuberculosis exhibit opened there April 27 under the auspices of the State Board of Health and the Rhode Island Anti-Tuberculosis Society. Among the prominent speakers were Governor A. J. Pothier and Le Baron C. Colt, agent for the National India Rubber Co.

Colonel Merton A. Cheesman, of the Bristol Train of Artillery, one of the oldest military organizations in the country, who is also an official of the National India Rubber Co. at Bristol, was a speaker at a dinner following the 137th anniversary parade of that command on April 22.

John Gray, who for a long time was head of the cutting and the shoe rooms of the Alice Mill, Woonsocket, a subsidiary plant of the United States Rubber Co., died at his home, 419 Pond street, in that city, April 19, after a long illness. The funeral was held Monday, April 22, at St. Charles' Church. Conspicuous among the floral tributes were two pieces from the shoe and cutting rooms of the Alice Mill.

Felix W. Conley, 23, for several years an employe of the packing department at the factory of the National India Rubber Co., Bristol, died at his home in Bristol, April 1. The funeral was held at St. Mary's Church two days later.

THE RUBBER TRADE IN SAN FRANCISCO.

By a Resident Correspondent.

A BETTER feeling may be said to pervade the trade than has been noticed for some months past. There have been good rains at proper intervals to insure excellent crops, and this has inspired renewed business activity in all sections. The country continues to be prosperous, and the cities are showing a tendency to livelier trade. There has heretofore been complaint that conditions were unfavorable in the cities of the Northwest, in Oregon and Washington, but the reports this month indicate that there is great improvement all through the Northwest. In San Francisco conditions are particularly favorable. The people of this city are realizing more and more the advantages of uniting in concerted action for the future welfare of the community. The people have, at recent elections, appropriated large sums for municipal buildings and improvements, and as a municipality the city is showing more substantial signs of growth and development than ever before.

The City of San Francisco is about to advertise for bids for 20,000 feet of hose in accordance with the new regulations recently adopted, and the merchants are interested to know what the outcome will be. This city has been in the habit of compelling the manufacturers to bid on special private specifications, which

were generally so unsatisfactory to the manufacturers that there was always trouble in getting bids, and always a great deal of dissatisfaction expressed. In order to overcome this, the city proposed that all of the rubber houses get together and frame up a uniform set of specifications which would be broad enough to suit all of the manufacturers. During the past two months the local merchants have been bumping this proposition about without attaining very definite results. At last the city and everybody concerned have seen the futility of such a course, and the city has consented to allow the manufacturers to make bids without any restrictions as to specifications. This would be considered entirely satisfactory were it not for the test guarantees that are required. The city not only requires a pressure test on taking the hose, but also requires a guaranteed diminishing strength test from year to year thereafter. The manufacturers are willing to comply with the initial test and to guarantee against defects of material and workmanship thereafter, but they do not like to be responsible for pressure tests after the hose has passed out of their care and control.

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Mr. Cook, manager of The B. F. Goodrich Co., reports that business at this time of the year is particularly good, and this includes all of the company's lines. Business is also picking up in the Pacific Northwest, especially in the State of Washington.

* * *

R. H. Pease, Jr., treasurer of the Goodyear Rubber Co., has returned from his trip to New York. He has been looking after the firm's interests in the East. R. H. Pease, Sr., reports that the recent storms have encouraged business. With snows in the mountains, business in the mining districts and also in the irrigation districts which needed water, has improved.

* * *

The Gutta Percha and Rubber Manufacturing Co. reports that business is showing improvement this month, and that the outlook is entirely satisfactory.

* * *

The Gorham-Revere Rubber Co. has opened a new store for the tire department on Golden Gate avenue near Van Ness avenue. Harry L. Parkman will be the manager. Mr. Parkman has been a regular traveling salesman for the firm for a good many years, and his friends are glad to see him promoted to the management of the new store.

* * *

John P. Costello, of this city, has recently been appointed as assistant to M. E. Murray, the manager of the San Francisco branch of the Republic Rubber Co. Mr. Costello is a well-known local business man, although heretofore very slightly identified with the rubber business.

* * *

The Diamond Rubber Co. and the United States Tire Co. had a lively game of baseball on April 14 which resulted in a score of 12 to 5 in favor of the former. C. A. Gilbert, new Western district manager of the United States Tire Co., pitched the first ball, and the man at the bat on the opposing team was C. E. Mathewson, Pacific Coast manager of the Diamond Rubber Co. J. A. Jones and R. L. Sargent were the batteries for the Diamond team, and Crusoe and Smith were the batteries for the other.

* * *

W. E. Parsons has been added to the traveling salesman force of the Goodyear Tire & Rubber Co. He will have charge of California territory from San Jose to the Tehachapi. In another month the San Francisco branch of this company will be installed in its new quarters at the northwest corner of Van Ness avenue and Sutter street. Walter N. Hunt, who for the past two years has been with this firm, has resigned to take a trip East, where he will look over the agencies with a view to starting in

San Francisco for himself. Arrangements have been completed by this company to open an additional branch in Oakland, Cal. The new branch will be located on Broadway at Nineteenth street. A feature of the new store will be a complete line of the company's rubber floor tiling.

* * *

The Swinehart Tire and Rubber Co. has established its agency with the W. B. Guyton Tire and Rubber Co. of 1013 South Main street, Los Angeles, Cal.

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The Fisk Rubber Tire Co. has just moved into its new quarters on Van Ness avenue. General Manager Pratt, of the Western branch of the Fisk Rubber Co., is more than pleased with the outlook for his firm on the Coast.

* * *

H. S. Firestone, of the Firestone Rubber Tire and Rubber Co., is now visiting in San Francisco.

* * *

The Weinstock-Nichols Co. of this city has recently organized a new department, known as the Inner Tube Insurance Department. Its purpose is to insure and repair punctures and blow-outs in inner tubes.

* * *

The Seattle-Mexican Rubber Co. has been organized and incorporated in Seattle, Washington. The authorized capital stock is \$60,000. R. E. Cameron and C. H. Steffens are the incorporators.

* * *

Hughson & Merton, Pacific Coast agents of the Ajax Tire Co., have moved to their new quarters at 530 Golden Gate avenue.

* * *

J. D. Ralph, manufacturers' agent in this city, has moved to larger and more convenient quarters in the Phelan building on Market street.

* * *

Mr. Hall, representing the United States Rubber Co., of Chicago, is now in San Francisco on a pleasure trip.

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M. W. Bean, H. E. Frazier and J. Kilmer have organized the Empire Tire Repair and Supply Co., a corporation, at Spokane, Washington with a capital stock of \$5,000.

THE RUBBER TRADE IN TRENTON.

By a Resident Correspondent.

THE rubber industry in this city shows marked improvement over the immediately preceding months. The majority of the plants are working full time, and those plants devoted to the manufacture of automobile tires are operating day and night shifts of operatives, but in the other lines, according to many accounts, there is still room for improvement.

One of the leading manufacturers who did not care to be quoted in discussing the trade situation in this section, said: "The unsettled condition of the tariff question has a marked effect on conditions in the rubber industry. It is true that many plants are booking orders for big shipments for railroads, but you will note that the orders are placed with the proviso, 'as wanted.' This lets the big railroads out, and the orders may not be asked for for several years. With some concerns business is up to the average for a presidential year, but the tariff problem and the uncertain presidential outlook are factors that must be reckoned with in the rubber industry, and many firms are not doing the business of last year."

* * *

The Thermoid Rubber Co. is one of the plants to operate day and night, this being necessary by reason of the large number of orders on hand. This activity has been in evidence for the past month, and the force of operatives has recently been materially increased. While the Thermoid is doing a big business in auto

tires, the other branches of the business are rushed with orders. Daily shipments are being made to distant points in the United States and Canada, and even to South America and Australia. The Western business of the company has greatly increased during the past year. Aside from the manufacture of auto tires and brake linings, a general line of rubber goods is manufactured.

* * *

George E. Knowles, of this city, who for the past year was superintendent of a rubber manufacturing establishment in Jersey City, has accepted the superintendency of the plant of the Thermoid Rubber Company, this city.

* * *

John E. Broughton, a dominant factor in the affairs of the United and Globe Rubber Manufacturing Cos., is being urged to accept the Republican nomination for member of the lower House of the New Jersey Legislature from this section.

* * *

One of the many victims of the *Titanic* disaster was Washington A. Roebling, 2nd, son of Charles G. Roebling, director-general of the immense Roebling plants in this city. Washington Roebling was an officer of the Mercer Auto Co. and Mercer Auto Tire concern. He was returning to this country after a tour of inspection of auto tire and automobile factories in France, England and other parts of Europe.

* * *

General C. Edward Murray, treasurer of the Empire Rubber Co. and Crescent Belting and Packing Co., and acknowledged leader of the Republican party in this section of New Jersey, is a candidate for delegate to the National Republican convention from the Fourth Congressional District of New Jersey. General Murray favors the nomination of President Taft because of the President's advocacy of protective tariff measures. The general is immensely popular with the rank and file of the party, and for years past has aided many a Trentonian to better his position in life.

RUBBER BOOTS WITH LEATHER SOLES.

FOR many purposes and in many places there is nothing so good as a rubber boot. Those whose work compels them to walk through, or stand in water, appreciate the waterproof qualities of such footwear, and are free users of these goods. And this is, perhaps, the leading demand for rubber boots, an all-the-year-round demand, which totals far more than the spasmodic call that is caused by the snow storms of an average winter.



But leather boots have at least some advantages. The soles wear longer; they do not tear as easily, and they give the wearer a less slippery foothold. Therefore if a boot could be made which would combine the waterproof

qualities of rubber with the advantages of the durability and service of leather, it would certainly be found of value in many industries, and should meet with a large sale.

This was the problem, and it was solved in the simplest and most direct way by Fred F. Shafer, of the Goodyear India Rubber Glove Manufacturing Co., Naugatuck, who invented and patented the method, or process, under which the boots and shoes are made, which are known by the name of Rubberhide. The invention, briefly stated, is a rubber boot (or shoe) made as are regular goods, except that the sole is made much thinner and lighter, and extends beyond the body of the boot, thus practically forming a welt, to which the leather sole or soles are sewed, in precisely the same manner as a Goodyear welt shoe is made. It will be seen at once that such a boot will be as waterproof as

any rubber boot, for neither the sole nor the upper is punctured in attaching the sole, and the sole will give the same wear as it would on a leather boot.

It is interesting to learn that, having accomplished the object desired, a difficulty at once presented itself in selling the goods. A boot made in this manner, and of the best materials, must naturally be high-priced, yet their principal market must be sought among wage-earners whose pay was small, such as the workers in mines, on concrete work, in digging and trenching. In fact, the boots could not be retailed at less than half a week's pay of the men who most needed them.

The jobbers and retailers of footwear fought shy of such a proposition and President H. W. Child of the company found it necessary to institute a campaign of personal solicitation to interest the ultimate consumers, or those next to them, the store-keepers who sold exclusively to miners or laborers. In fact, the principal customers of the manufacturers are the keepers of "company stores" at the mines, contractors of engineering work, and municipal and national boards of public works.

And it is surprising (until one comes to think about it) that the miner, who works for two dollars a day, or less, will pay six dollars or more, for a pair of these boots. But this man has found that a pair of rubber boots are useless, and fit only for the junk heap, when the soles are worn through, while these soles give much longer wear, in the first place, and can then be re-soled and will then give a second, and often a third term of usefulness, and are thus more economical in the end.

These are made in various styles, hip, storm-king and short boots, in all-duck, duck-vamp and dull gum, and in 7½ and 10-inch pacs in all-duck. A light boot with a heavy single sole is made especially for fishing and sporting purposes, which has proven quite popular.

One style of boots made has an edge of malleable iron around the heel and the forepart to give extra wear and protection, these rims being so constructed that they cannot be torn out or broken. These give extra wear and protection to the sole and heel.



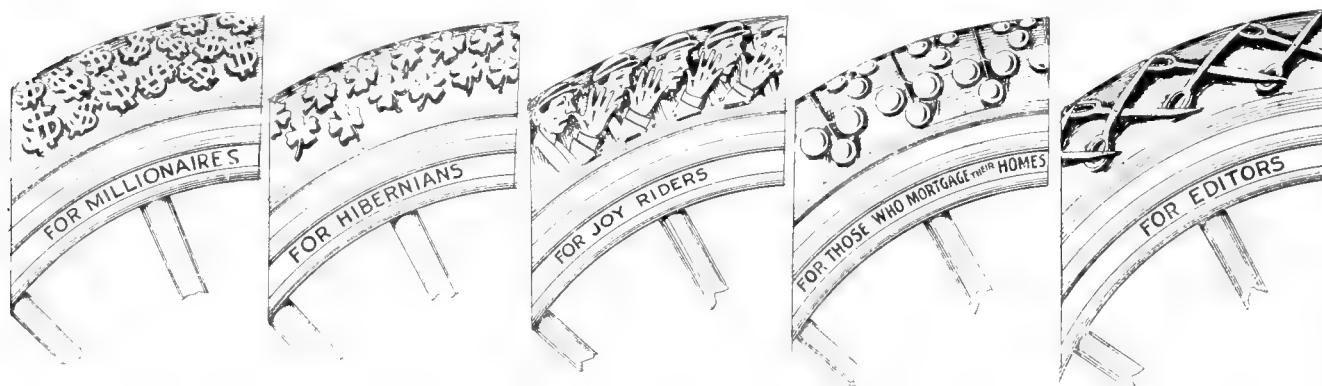
That President Childs has been successful in securing a market for this combination of rubber and leather is shown by the wide extent of territory over which these boots are distributed. They are worn in the coal mines in Pennsylvania and the iron and copper mines of Michigan. They are called for by those working in the irrigation fields of the West. Many are worn in the work of the Panama Canal. Orders come from Mexico, Porto Rico, Peru, South Africa, Australia, New Zealand, and even from Rangoon and other Asiatic points.



OUR TIRE SUGGESTIONS BEARING FRUIT.

PRIMARILY it is the province of THE INDIA RUBBER WORLD to keep its readers well informed on all developments of importance in the great rubber industry. But if occasionally, incidentally, we can also add anything to the general joy of living, we are most happy to do so. Evidently we occasionally do.

found lodged in the heart of a friend, for our anti-skid suggestion lighted on appreciative soil and has already fructified. We reproduce below some anti-skid designs taken from the April 11 issue of that agreeable and witty publication called "Life." These suggestions are employed to illustrate a dissertation on the utility, or inutility, of prevailing anti-skid designs. They appear under the caption "Suggestions for Additional Distinctive All-



SUGGESTIONS FOR TIRE TREADS FROM THE INDIA RUBBER WORLD, JULY, 1911.

Some months ago the editorial mind, having dwelt for a long time upon the many anti-skid devices exploited by manufacturers of tires, conceived a happy fancy, which was published in our issue of July, 1911, and is reproduced above in the five cuts, show-

Rubber Non-Skid Treads." Their parentage is obvious, for it will be noted at once that the dollar-sign tread and the pawnbroker tread are the direct progeny of our July offering, while the other designs may be classified as collateral issue.



FOR THE CAPITALIST.



FOR THE ARTIST.



FOR THE PAWNBROKER.



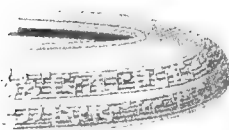
FOR THE DRUGGIST.



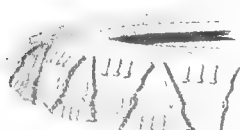
FOR THE DEMOCRAT.



FOR THE REPUBLICAN.



FOR THE MUSICIAN.



FOR THE SPORTSMAN.



FOR THE ARCHITECT.



FOR THE LAWYER.

SUGGESTIONS FOR TIRE TREADS FROM "LIFE," APRIL 11, 1912.

ing five different styles of anti-skid designs suited to people in different walks of life and various occupations. These designs were published without any ulterior motive, but simply to inject a little brightness into the general drab scheme of life. We did not expect to hear from them again. But evidently this mid-summer phantasy was like the poet's song as described by Longfellow, which is sent forth at random into space and afterwards

Who knows but that this sprightly conceit of ours is the beginning of a new era in treads! Would it not be wonderful if it should revolutionize the entire tire industry?

It is announced that the rubber interests of Batavia, Java, are starting preparations for an international rubber exposition in that city during the first half of 1914, under the patronage of the Governor-General of that colony.

The German Material Testing Bureau.

WITH a staff of 72 trained scientists and 150 assistants, the Royal Material Testing Bureau, at Gross-Lichterfelde, near Berlin, affords an interesting example of the application of science to promoting the work of industry. Some of its features were referred to by THE INDIA RUBBER WORLD in the issue of January 1, 1912 (page 160), as well as on previous occasions.

The recently published report of the bureau deals with the year ended March 31, 1911, during which time much good work was accomplished. It is of interest to note that at the date of the report, there were prospects of still further progress during the year 1911-1912 (which has just closed), owing to the additional funds which the Jäger bequest had placed at the disposal of the bureau.

In the report the principal features of the mechanical and chemical tests of rubber are dealt with in a comprehensive manner.

MECHANICAL TESTS.

Reference is made to a case in which a compound of regenerated rubber had been claimed to contain 69 per cent. natural rubber, while the analysis showed only 40 per cent. It had been wrongly assumed that the substance of the rubber was unchanged by the process of regeneration, and that natural rubber and regenerated material were identical. The report adds:

"The bureau stands in exactly the same position as to regenerated as it does with regard to natural rubber. . . . Regenerated rubber should be tested for its mechanical strength. Comparative tests, the results of which would be expressed by figures, should be applied to compounds made with and without regenerated rubber. . . . These would demonstrate whether, and to what extent the regenerated material is in a position to fully replace natural rubber in rubber compounds. The bureau is quite ready to co-operate in such objective tests."

The testing of rubber and other insulating materials, which took place in 1909-1910, was continued in 1901-1911, and its scope considerably extended; the tests applied being more exacting, and the services of the bureau being called upon to an increased extent. From the current income of the bureau, it was found possible to increase the facilities for washing and vulcanizing crude rubber, and for preparing rubber compounds. By the courtesy of various manufacturing establishments, officials of the bureau were allowed to practically study at those plants the preparation of rubber compounds and other important manufacturing operations. Mechanical tests of rubber were continued and further elaborated with the machine of L. Schopper of Leipzig, as well as the Martens-Schopper machine. New machinery of this description has recently been exhibited, while other improved models are being studied by the above named firm.

Various inquiries and orders for testing were received as a result of the recent London Rubber Exhibition, and were largely due to the exhibit of testing apparatus by the bureau, in conjunction with the papers read on that occasion by Professors Hinrichsen and Memmler, and to the co-operation of other officials. As a result of negotiations with the Association of German Electricians, an extensive programme was prepared for exhaustive tests of insulating materials at voltages up to 500 volts. A number of factories co-operated in providing the apparatus for carrying out these tests; the object of which, amongst others, was to investigate the qualities of substitutes for hard rubber; and to define their utility as compared with that of genuine rubber products. With this view, tests were instituted as to their qualities, their strength and resistance under tension, pressure and flexion, as well as their hardness and

capacity of withstanding chemical and climatic influences. The instructive results of these tests are now being compiled by a committee of the above-named association, with the object of drawing up normal regulations for insulating materials. It is added that there is reason to expect, that hard rubber substitutes will thus "come into their rights."

One of the principal features of the bureau's action has been the carrying out of agreed tests, as well as the adoption of uniform methods in selecting samples, that point not at present usually receiving the attention it deserves.

CHEMICAL TESTS.

A prominent fact in connection with the chemical section, was the increased extent to which its services were called upon by the rubber industry. In this connection mention is made of the work by Professors Hinrichsen and Memmler on "Rubber and Its Testing," which has met with general commendation from the technical press. Another interesting event was the reading by Professor Hinrichsen, at the 1910 Munich Congress of the German Chemists' Association, of a paper upon "Physical-Chemical Rubber Studies," in which he dealt with various investigations made at the bureau as to the molecular dimensions of rubber, the theory of processes of vulcanization and other subjects. Professor Hinrichsen in collaboration with Professor J. Marcusson likewise dealt with "The Determination of Filling Materials in Rubber Compounds." "The Optical Action of the Resins Present in Rubber" also formed the subject of investigation and report by these two experts, while other points treated by the former included "The Tetrabromide Definition of Rubber," and "Resin in Rubber."

The relative importance of rubber in the work of the bureau is illustrated by the fact that in division 5 (general chemistry) the 1,071 tests made during the year 1910-1911 included 282 of iron and steel, 216 of rubber in various forms, 191 of fuel, and 382 in 15 other branches.

The administrative policy of the establishment is prominently expressed in the following statement:

"The bureau would be much pleased, if this annual report gave rise to practical suggestions as to how the usefulness of the establishment to German industry could be continually increased. Every suggestion will be conscientiously weighed."

GERMAN OFFICIAL TESTS OF BALLOON FABRICS.

ONE of the most interesting portions of the report of the Gross-Lichterfelde Material Testing Bureau for the year 1910-1911 is that dealing with the tests of balloon fabrics. For this purpose the rupture apparatus of Gradenwitz was installed, as well as another (designed by Martens), for automatically recording pressure, the latter permitting rupture tests of samples measuring $1/3$, $1/4$, $1/8$, and $1/16$ of a square yard.

These appliances have been supplemented by one designed by E. Heyn, for determining permeability to gas, and likewise one designed by O. Bauer for ascertaining permeability to the radiation of heat. The necessary appliances for determining the kind of fiber, the strength of the fabric, and its resistance to the effects of weather, sunlight and damp, had already been installed in the textile division, so that the bureau claims to be in a position to test balloon fabrics in every manner required.

Communications actively carried on with leading representatives of aviation, led to the elaboration of a plan for a comprehensive series of tests of balloon fabrics, so that the properties of new materials could be clearly shown. It is also con-

templated, by means of tests made of fabrics, which have been long in use, to define the changes produced in them by age under the influences of weather, and under the mechanical strains to which they have been subjected during flight and in landing.

One large firm availed itself freely of the facilities thus afforded by the bureau, upon the occasion of its being in litigation with another firm, respecting the delivery of a balloon covering. It was important to prove to what extent the fabric had suffered from long storage and through having been packed several times.

It is of interest to note that the Gross-Lichterfelde bureau is keeping fully abreast of the progress of modern science in its latest development.

NEW TESTS OF RUBBER.

AT the recent Berlin meeting of the Prussian Association for the Promotion of Industry, interesting addresses were delivered by Professor Memmler and Professor Hinrichsen, both of the Royal Material Testing Bureau, Gross-Lichterfelde. While the former dealt with the standard mechanical rubber tests, the latter treated the subject of recent investigations as to the chemistry of rubber.

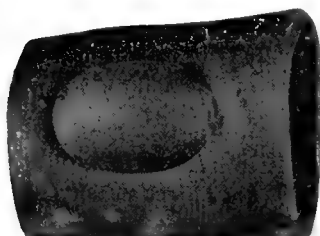
With regard to artificial rubber, he expressed the opinion that such material progress had been made that there was no longer any reason to doubt the technical practicability of rubber synthesis.

Dealing with the subject of the chemical testing of rubber, Professor Hinrichsen alluded to the understanding which had been arrived at between the Royal Material Testing Bureau and the United Manufacturers of Insulated Wire. According to this agreement, the only organic filling substance permitted is ceresine, to the maximum extent of 3 per cent.; but no rubber substitutes. This arrangement, it would seem, was mainly due to the opinion that there does not exist at present any sufficiently reliable method of defining the proportion of rubber substitute in rubber.

In the ensuing discussion Dr. Frank urged that the addition of rubber substitute was of importance for the properties of cables. He quoted the instance of a cable covering examined by him which had been laid in 1888, and is today in excellent condition, though containing 28 per cent. of rubber substitute. In addition he expressed the opinion that cables laid in accordance with the new rules would not prove satisfactory and recommended investigations for the purpose of finding a new method of determining the proportion of substitute. At the same time he did not consider that the present method of making this test was so inexact as had been represented. Doubts were, moreover, expressed whether the cable manufacturers for the want of a suitable method of analysis would give up the use of technically valuable rubber substitutes.

TO PROTECT THE TRIGGER FINGER.

The accompanying cut shows a pad of rubber intended to go around the finger of the man with the gun. The oval-shaped



RUBBER FINGER PROTECTOR.

is made by S. W. Silver & Co., London, England.

ASBESTOS FABRICS.

THE enterprise displayed by the textile industry in its quest for raw materials, is exemplified by the fact that German textile experts see a great future for asbestos in that industry. It has been stated by antiquaries that the textile qualities of asbestos were known to primitive nations, the bodies of their illustrious dead having been wrapped in fabrics woven from asbestos fibers. The use of the material in garments was more-over known to the old American people. It was, however, reserved for modern times to develop its application to the textile industry.

For various reasons, asbestos is particularly suited for use as a textile material. In the first place, it is perfectly incombustible, moreover it is a poor conductor of heat, and finally it deadens the waves of sound. It is by no means a difficult task for modern preparing and spinning machines to spin the fibers after they have been dissolved; while among other uses of asbestos is the manufacture of carpets, which can be safely laid in front of an open fireplace, without risk of fire being caused by glowing cinders or pieces of wood. Asbestos takes dye excellently, the colors thus produced equaling those of wool carpets.

Asbestos garments are prominent in various industries, all workers in foundries and steel plants wearing asbestos aprons, in order to protect their bodies from the radiation of metals at white heat. Firemen in nearly all countries use asbestos gloves, helmets and protective apparel, while asbestos ropes constitute one of the most valuable appliances in fire department equipment.

Still another field is afforded by theatrical art for the use of asbestos, with a view to eliminating danger from fire, all kinds of scenery, backgrounds and curtains being composed of that material.

As pointed out in "Der Posamentierer," weaving asbestos in colors is a new form of textile industry, particularly by its being woven in conjunction with the collodion filaments used in artificial silk. In this way very effective designs can be produced out of the two materials combined as warp and weft. When the fabric is woven it passes through a singeing machine. By reason of the inflammability of the surface of the figured collodion portion of the fabric, the singeing brings out the latter with distinctness, while the incombustible asbestos portions are not affected by the flame, and thus produce any desired lace or similar effect.

A CHART OF VALUABLE RUBBER INFORMATION.

L. & W. Van de Velde, Antwerp, have recently issued an exceedingly convenient chart, which in compact form gives a great deal of rubber information. It shows the fluctuations of three grades of rubber—fine Pará, plantation, and African—for the last 20 years, giving the value of these three rubbers in francs per kilo and in shillings and pence per pound during that whole period. In addition the chart contains a table showing the world's production of these three classes of rubber for the entire 20 years, and the consumption in Europe and the United States, and the total world's consumption of fine Pará, and of all other sorts of rubber. It also gives the importations of rubber during this period into the various European ports and into the United States.

Jointly with this chart L. & W. Van de Velde have sent out a handsome engraving as a souvenir of the fiftieth anniversary of the founding of their house. The design, which is highly decorative, shows among other features portraits of the four most prominent members connected with the house at present and in the past, together with a view of their building in Antwerp and a rubber plantation scene.

WENT DOWN WITH THE "TITANIC."

OUR usual letter covering the india-rubber trade in Great Britain, which has appeared so regularly in our pages for many years, is omitted in this number because of the fact that it is at the bottom of the Atlantic, together with all the other mail—many tons in volume—that went down with the *Titanic*.

GERMAN VIEW OF THE SITUATION.

IN dealing with the situation of the rubber trade, at the recent general meeting of the Continental Caoutchouc and Gutta Percha Co., of Hanover, Kommerzienrat Siegmund Seligman reported the present condition of business as good, notable activity having characterized the operations of 1912. Indications, moreover, point to there being no lack of occupation in the immediate future, prospects for a later period being equally favorable.

At the same time he called attention to the fact that crude rubber prices were 10-15 per cent. higher than at the beginning of the year. He added:

"This is a by no means unimportant advance, for which we have so far not been able to make up in our selling prices. Whether it will be possible to establish an increase is today hard to say. . . . On the whole, the prospects are of such a nature that we believe we shall be able to report a satisfactory result for the current year."

Commenting upon the recent movement in rubber prices, the "Gummi-Zeitung" quotes as an illustration the following London quotations for fine hard Pará:

July 17, 1911.....	4s. 4½d.
December 29, 1911.....	4s. 2½d.
March 13, 1912.....	4s. 9¼d.
March 26, 1912.....	5s. 2 d.

While prices have since receded to some extent, the editorial remarks on the situation as it stood at the end of March are still none the less of interest:

"Thus prices of fine Pará have again exceeded the 5 shilling limit, and medium sorts have risen in proportion. The result is a general disturbance in rubber manufacture and trading. . . . Is this the beginning of another advance? . . .

"On the other hand, the situation is so strained that it will be unavoidable, sooner or later, to advance selling prices, from reasons which are apparent to everyone. . . . The present position of the rubber industry cannot, therefore, be regarded as generally favorable. Even if dealers and manufacturers are busy, there will not be a feeling of encouragement until a proportion exists between current prices of goods and the advancing quotations for raw material."

According to various reports, some advances have been made in their lists by German manufacturers, particularly in the form of the upward revision of prices, where special depression had existed. In bottle disks, for instance, an advance has been made by some factories equalling about 3 cents per pound. This and other advances, however, only constitute a reaction from the recent low level of prices.

While bottle disks do not of themselves constitute a very important article, they are peculiarly sensitive to the fluctuations of the crude rubber market, having been described as a seismograph indicating coming movements.

"CONTINENTAL" OF HANOVER FORTY YEARS OLD.

The Continental Caoutchouc and Gutta Percha Co., of Hanover, has been celebrating its fortieth anniversary, having been founded on October 8, 1871. During its first years it experienced many difficulties, which at one time seriously threatened its

continuance. Its victory has been ascribed to the new force acquired through the accession of Herr Adolf Prinzhorn in 1875, and of Herr Siegmund Seligmann in 1876; both still members of the board.

One of the principles steadily adhered to by the company has been that of placing in good years large sums to reserve account, and making liberal allowances in valuing assets in any way of a doubtful character. As a result of this cautious policy some of the claims previously valued on a conservative basis, have turned out better than expected and have realized a surplus beyond the valuations. The declaration of a 45 per cent. dividend at the recent meeting is the best proof of the successful methods pursued by the company.

THE NEW DIRECTOR OF THE BRUSSELS BOTANIC GARDENS.

M. H. Durand, the late director of the State Botanic Gardens, Brussels, was a botanist whose detailed work was much appreciated. It is to him that is due the *Index Generum* or "Index of Species," in general use by botanic gardens and botanical collections, as well as a comprehensive treatise on African flora.

His fellow-worker, Dr. Emile De Wildemann, has been named by the Belgian government as his successor, this appointment having given much satisfaction in technical circles. His earliest work was in connection with the *algae* of Belgium and Switzerland, and subsequently with reference to the botanical features of the Dutch Indies, the study to which his attention was specially directed being that of the tropical flora. Dealing with the large quantity of materials, concentrated in Brussels by the missions, which were traversing the Congo in all directions, Dr. De Wildemann devoted himself specially to the determination of the various species of African flora, in which studies he collaborated with the late M. Durand. Amongst the numerous works he published was a treatise in 1903 on the lactiferous *Apocynaceae* of the Congo. Another work of his was "Extensively Grown Tropical Plants," which has passed through two editions.

Holding the diploma of Doctor in Natural Science, and being a remarkable linguist, he has maintained close relations with botanic gardens all over the world, and has frequently taken part in scientific congresses. He has likewise been a regular contributor to French rubber journals.

At last year's London International Rubber Congress, Dr. De Wildemann read a paper upon "African Rubber Vines: Their Cultivation and Working."

"TO BURST WITH A SICKENING THUD."

At least six days in every week, some discovery is made in the way of new rubber or rubber substitutes, that is going to play havoc—not only with the rubber plantations, but with the old original forests along the Amazon. A Western paper lately published the following news item from Grand Junction, Colorado:

"The rubber plantation boom is likely to burst with a sickening thud if the discovery made by T. E. Bailey, a ranchman near here, pans out as he expects. Bailey has discovered a mountain of what is believed to be mineral rubber. The mineral possesses all the qualities of rubber, and there are millions of tons of it.

"The rubber mountain is ten miles northwest of Grand Valley. The mineral is black, very hard and very dense. It is without grain or layer and is susceptible of a high polish. It is a non-conductor of electricity and has other properties of hard rubber. It has much the appearance of the rubber used in combs and similar articles."

Notwithstanding Mr. Bailey and his mountain of rubber, the probability is that Fine Up-River Pará will still command somewhat over \$1 per pound, and the old-established plantations in the Far East continue to yield their shareholders handsome returns.

RUBBER AND AVIATION IN FRANCE.

By René Bobet.

THE numerous applications of rubber to aviation include four main classes of products, very different in character:

- I. Wheels with pneumatic tires;
- II. Rubbered fabrics for the wings;
- III. Mechanism for breaking falls;
- IV. Aviation equipment.

Each of these branches will be considered separately.

PNEUMATIC TIRES.

All the wheels used on aeroplanes have pneumatic tires. The wheels consist of a metal rim, of an air chamber with valve, and of a tire; being constructed with bicycle or motorcycle axles and metallic spokes, so as not to increase the weight. The tires are sometimes made with wires and sometimes in the clincher style; being cemented on by hand.

When aviation started, people were satisfied to use bicycle wheels. Today the types of wheel employed are very numerous, varying in each instance; it being thus rather difficult to give a complete list. Aeroplanes are seen with wheels from 10 to 28 inches in diameter, and from $1\frac{3}{8}$ inch to $3\frac{1}{2}$ and even 6 inches in thickness. Over 20 separate sizes are formed by combinations of these dimensions. Owing to the fact that the clincher tire, while suitable for motorcycles or for automobiles, is perhaps a little heavy for aeroplanes, many constructors of the latter prefer to use tires with rods. The latter have the advantage of being lighter, and moreover the weight and resistance can be very easily varied by altering the number of layers of fabric and the thickness of the rubber, while combining the various dimensions.

There is a tendency to eliminate small pneumatic tires, $1\frac{3}{8}$ to $1\frac{1}{2}$ inch thick of the bicycle type, which are really too small and are being replaced by pneumatic tires of 2, $2\frac{1}{2}$ and $3\frac{1}{2}$ inches, mounted on wheels of 20, 26 and 28 inches in diameter. Most aeroplanes have two wheels in front and one behind. Some have four in front on same axle; two at each side.

RUBBERED FABRICS.

The wings of aeroplanes are covered with fabric possessing extreme resistance. Some constructors are satisfied with using varnished or oiled fabrics or even ordinary materials, but most frequently rubbered fabrics are used. These fabrics ought to be very light and yet very strong, being, moreover, waterproof, so that in case of rain the aeroplane would not be weighted; the rubbering being on one side or both sides. It is effected by the rubbering machine or spreader; the fabric receiving several layers of Pará solution, so as to ensure very regular application.

The following table illustrates some fabrics:

Designation of fabric.	Width, inches.	Weight, sq. yd., in ozs.	Resistance in ozs. per sq. yd.
Ordinary cotton fabric.....	42	4	$29\frac{3}{4}$
Light cotton fabric.....	47	$3\frac{3}{4}$	24
Very light cotton fabric....	47	$3\frac{1}{4}$	$13\frac{1}{2}$
Silk fabric	35	$3\frac{3}{4}$	$32\frac{3}{4}$
Linen fabric	51	$4\frac{3}{4}$	42
Heavy linen fabric.....	42	$5\frac{3}{8}$	$52\frac{1}{2}$

Aeroplane wings fitted with rubbered fabrics present more security than those with ordinary fabrics, being on that account destined to be more and more used by aviators.

FALL-BREAKING APPLIANCES.

Aeroplanes are usually provided with landing cars in combination with fall-breaking systems in such a way as to protect the

aviator and the mechanism against concussions of too violent a character. These fall-breaking appliances are most frequently composed of threads of first quality rubber, grouped together and covered with a lace-work of cotton. The extremities are fitted into attachments so constructed as to be fixed to the aeroplane. These attachments are made in various lengths from 10 to 20 or 30 inches and in diameters from $\frac{1}{4}$ inch to $1\frac{1}{2}$ inch.

Of course, these fall-breaking appliances vary according to the construction of the aeroplane and the mode of landing contemplated. They consequently vary according to its weight and should be designed for resisting considerable strains.

Instead of employing a number of threads of rubber grouped together (of uniform diameter) rubber cords of various diameters, for instance, from $\frac{3}{8}$ to $\frac{1}{2}$ inch can be used. Some fall-breaking appliances have the form of a bracelet or ring, composed of braided threads of rubber, with a lacing of cotton underneath.

Still another type of fall-breakers is constructed, composed of rings of first quality rubber, grey or red, very elastic and full of nerve, placed flat above the axle and fixed on two points attached to the landing mechanism. The rings are usually 4 to 5 inches internal diameter, and 5 to 6 inches external diameter, with a thickness of $\frac{1}{4}$ to $1\frac{1}{2}$ inch. Three rings are placed three or more on each side, beside each other.

It would seem as if fall-breakers of various kinds are destined to be more and more employed, their usefulness being incontestable. Suitably placed they deaden concussions of all kinds, both horizontal and vertical, thus permitting landing in very easy conditions.

For this purpose the use of rubber is the natural course, it being very elastic and possessing marked properties of resistance. It is, moreover, so light that it will always be preferred to metallic springs, for mechanisms intended to diminish concussions.

AVIATION EQUIPMENT.

Among the numerous objects composing the aviator's equipment may be cited the rubber "combination," of black, grey or brown vulcanized rubber, a garment in one piece and therefore inconvenient for putting on and taking off. A similar costume but in two pieces, consists of blouse and pants, the whole being of vulcanized rubber in various colors. The aviator is often provided with an elastic belt, composed of a band in two parts, united by a fastening, to which are attached elastic cords fixed to the leather straps, adjustable as desired, attached to the aeroplane. This belt makes the aviator of one piece with his seat. He cannot be thrown out, while, by reason of the elasticity of the belt, the concussion in the event of accident is considerably deadened. The fastening is easily removed when the aviator desires to leave the aeroplane.

Aviation, in fact, presents numerous uses for rubber and the manufacturers who will take the necessary steps to furnish really practical specialties for that purpose, will find satisfactory outlets in this new industry.

NEW FRENCH RUBBER COMPANY.

With a capital equalling \$250,000, a company is being incorporated in Paris, under the style of the "Manufacture de Caoutchouc—Etablissements Edeline." The company will continue the operation of the Edeline plant, located at Puteaux, Seine. It is expected to maintain and develop the old connections of that influential firm, the new organization being considered likely to occupy an important position in the French rubber industry.

The company has been organized by M. Gustave Bouquillon, who lately resigned his position as consulting engineer of the Société Industrielle des Telephones. He will bring to his new post the fruit of his long experience, as well as new processes for the manufacture of automobile tires, which are regarded as ensuring the immediate success of the new company.

FRENCH MANUFACTURERS AND RUBBER DUTIES.

THE rejection of the proposal to levy a duty of 1 franc per kilo (about 9 cents per pound), on crude rubber, except on that from French colonies and protectorates reported in THE INDIA RUBBER WORLD of April 1, page 336), has given much satisfaction to the French rubber industry.

In commenting retrospectively upon the proposed measure, M. G. Lamy-Torrilhon, president of the Syndical Chamber of Rubber Manufacturers, refers to the general principle of fiscal legislation, according to which all raw materials intended for use in national industries are exempted from import duties. To renounce this fundamental principle, he remarks, would be launching into the unknown. From the point of view of the enormous injuries which might result to certain industries, and the disturbance which might be caused in the economic situation of the country, the consequences of such a measure might be irreparable.

According to recent statistics, he adds, rubber manufacture is one of the most important branches of French industry, representing a yearly output exceeding \$40,000,000. It constitutes the support of 30,000 workers and their families; or, including its accessory branches, at least 50,000 hands. It is pertinently urged that the development of the industry would be arrested by a duty on rubber, just at a time when it is being daily taken up for new purposes.

Out of an aggregate yearly product of about 93,000 tons for the entire world, that of the French colonies is estimated at less than 7,000 tons. France, it is stated, annually consumes altogether 16 to 17,000 tons of crude rubber, of which quantity the French colonies furnish less than 3,000 tons.

Not only in quantity, but also in quality, is the French colonial product (principally consisting of vine rubbers, such as *Landolphia Heudelotii* or *Owariensis*) to a great extent unsuitable as a substitute for South American *Hevea Brasiliensis*, *Castilloa*, *Manihot*, etc. One-half of the French consumption of rubber is said to consist of genuine Pará. The coefficient of duty (or *ad valorem* equivalent) would necessarily be higher on inferior grades which show a much heavier shrinkage than better qualities; a specific duty being of course levied on the impurities present, as well as upon the rubber contents. At present prices the duty would have represented about 10 per cent. on Pará, and 25 per cent. on Borneo rubber.

Another point referred to is the possibility of the reprisals which would have followed the adoption of the measure. While not specifically mentioned, it is evident that the fear of jeopardizing the important commercial relations between France and Brazil, had an important share in the action of the French administration.

In his concluding words, M. Lamy-Torrilhon takes the position that there are simple and easy ways of promoting the cultivation of rubber in the French colonies, on the lines adopted by England and Holland in the Far East, without the aid of a duty. To use his own words:

"We ask nothing better than the promotion in any way of rubber cultivation in our colonies, but any measure adopted, must not ruin an industry, which is energetically struggling against the invasion of foreign products. This would not only discourage it, but would oblige it for certain articles to seek a refuge with a nation where raw materials are free from duty."

The concluding sentence evidently refers to the contingency

of manufacturing outside of France, principally for the export trade. The drawback provisions of the bill are characterized as illusory and troublesome of application, particularly in cases where regenerated rubber forms a component of a manufactured product.

It is stated that the rejection of the obnoxious measure was largely due to the protests of leading manufacturers and importers, who waited upon Viscount de Villebois Mareuil, the "reporter" of the Customs Commission. The representations made were so effective that the commission expressed unanimous disapproval of the proposed legislation.

The text of the bill follows:

TEXT OF REJECTED FRENCH BILL.

1. Crude rubbers, the produce of forests or plantations, situated in foreign countries, will be subjected, on their entering France, to a customs or consumption duty of 1 franc per kilogram (about 9 cents per pound).

2. Manufactured objects from foreign countries, and containing a certain quantity of manufactured rubber, will be subjected, on entering France, to a duty in proportion to the quantity of rubber they contain at the rate of 1 franc per kilogram (about 9 cents per pound) of crude rubber.

3. Crude rubbers from forests or plantations situated in the French colonies or in French protectorates, will be exempt from all duties on entering France.

4. French manufactured products intended for export will profit on leaving France, by a drawback calculated according to the quantity of crude rubber they contain.

The drawback will be proportionate to:

1. The weight of the crude rubber contained in these products.
2. A coefficient variable every year and which will depend upon the proportion existing between the crude rubbers imported into France from French colonies and protectorates and the total quantity of crude rubbers imported into France during the preceding year.

FUSION OF FRENCH RUBBER FACTORIES.

At the recent extraordinary general meeting of the Etablissements Bergougnan, of Clermont-Ferrand, France, the absorption of the Société des Etablissements Torrilhon, of the same city, was unanimously voted. In order to carry this proposal into effect, the capital of the first-named company is being increased from the equivalent of \$2,600,000 to the parity of \$2,800,000.

Other fusions of important French rubber companies have been reported as contemplated, but do not seem to have as yet assumed definite shape.

AMERICAN, ENGLISH AND GERMAN RUBBER CONSUMPTION.

IN view of the growing importance of the European markets for the distribution of rubber, the statistical value of their recorded imports requires to be considered with relation to their exports, in order to arrive at their net consumption. In the subjoined table are shown the three results, grouped in such a way as to show the net consumption of America, England and Germany for the calendar years 1910 and 1911. Duplication of quantities is thus avoided.

The proportions of re-exports to imports in 1911 were (approximately): United States, 7 per cent.; England, 60 per cent.; Germany, 25 per cent.

AMERICAN, ENGLISH AND GERMAN CRUDE RUBBER STATISTICS FOR CALENDAR YEARS 1910 AND 1911.

	Imports.		Re-exports.		Consumption.	
	1910.	1911.	1910.	1911.	1910.	1911.
United States	90,139,232	82,921,465	6,158,694	5,651,575	83,980,538	77,269,890
England	98,220,528	101,491,624	52,401,664	63,804,384	45,818,864	37,687,240
Germany	41,151,660	43,885,160	10,459,460	10,266,520	30,692,200	33,618,640
Totals	229,511,420	228,298,249	69,019,818	79,722,479	160,491,602	148,575,770

JAPANESE INCREASED CRUDE RUBBER IMPORTS.

JAPANESE imports of crude rubber and gutta-percha for May, 1911 (as shown in the INDIA RUBBER WORLD of September 1, 1911, page 474), amounted to 54,493 pounds, value \$45,514. The impetus given to the Japanese rubber industry by the operation of the increased tariff on manufactures (which went into effect July 17, 1911), is proved by the import returns for January, 1912, showing a quantity of 84,630 pounds, with a value of \$62,951.

A comparison of the two months gives the following results as to sources of Japanese supply:

JAPANESE IMPORTS OF CRUDE RUBBER AND GUTTA-PERCHA.

	May, 1911.		January, 1912.	
	Pounds.	Value.	Pounds.	Value.
Straits Settlements.....	18,346	\$9,716	52,312	\$29,655
Dutch India.....	6,893	4,513	7,237	3,865
British India.....	7,240	4,125	Not Specified.	
Great Britain.....	6,590	8,868	6,846	7,482
United States.....	15,424	18,292	5,773	6,408
Germany.....			2,259	2,432
Other Countries.....			10,203	13,109
	54,493	\$45,514	84,630	\$62,951

The salient points of this return are the threefold increase of Japanese imports from Malaya, coupled with a falling off to the extent of about two-thirds in those from the United States.

As the average price of the former in January, 1912, was about 56 cents and that of the latter nearly double that rate it is evident that Japanese manufacturers are using increased quantities of a lower class of rubber than was the case in May, 1911.

THE RUBBER INDUSTRY IN JAPAN.

By Our Regular Correspondent.

EFFECTS OF THE NEW JAPANESE TARIFF.

ALTHOUGH, on account of the differences in classifications, it is frequently impossible to exactly compare the rates of the old and new Japanese tariffs, where such a comparison is possible, the effects of the new measure, which went into effect July 17, 1911, are visible. Thus in May, 1911, the imports of bicycle tires represented \$20,849; this amount being almost cut in half in January, 1912. Comparing the sources of supply the following results are obtained:

	May, 1911.		January, 1912.	
	Pounds.	Value.	Pounds.	Value.
Great Britain.....	15,506	\$18,251	6,009	\$10,353
France.....	253	215		
United States.....	1,033	2,383	110	292
Total.....	16,792	\$20,849	6,119	\$10,645

ASIA RUBBER COMPANY, LIMITED, TOKYO.

This stock company was established at Tokyo in December, 1911, for the purpose of manufacturing and selling rubber goods, with a capital of \$50,000, of which one-fourth is already paid in. It is contemplated to give attention at first to the selling department of the business situated at Tokyo, pending the construction of the factory elsewhere, which is expected to be completed by the end of the year. Mr. Masao Watanabe is managing director.

TEIKOKU RUBBER CO., LIMITED, TOKYO.

This company, established in February last, purchased the Teikoku Rubber Works, which had already been built at Kameido, Tokyo; the capital amounting to \$75,000, of which one-fourth is paid in. Its chief products will be rubber soles and rubber materials for toy balloons.

YOKOHAMA ELECTRIC WIRE CO., LIMITED.

On February 18 a serious fire took place at the plant of the above company, destroying the finishing, tubing, stranding and painting shops, the damage representing about \$100,000. This important concern (of which the INDIA RUBBER WORLD published an illustrated description in its February issue), will probably rebuild upon an enlarged scale.

VISIT OF MR. ERNEST E. BUCKLETON.

Mr. Ernest E. Buckleton, managing director of the North-Western Rubber Co., Limited, of U. S. A., Liverpool, arrived in Yokohama from San Francisco on February 26, per steamer *Tanba-maru*, proceeding to Kobe on February 28, and afterwards returning to Tokyo. Mr. Buckleton's visit is for the purpose of developing trade with the largest Japanese factories, in the reclaimed rubber produced by his company.

FERTILIZERS IN RUBBER CULTIVATION.

EXPERIENCE has proved the necessity of a certain amount of fertilization, as a condition of successfully cultivating rubber trees in tropical climates, this being particularly the case with *Hevea*. This fact has commenced to interest tropical planters, more especially those of the Federated Malay States, Ceylon and the Dutch Indies, who are trying to derive advantage from the more or less exact data now available on the subject.

As pointed out by a writer in "Le Caoutchouc et La Gutta-Percha," it has become more and more evident that certain chemical products exercise a favorable influence, not only upon the development of rubber vegetation, but also upon the yield of latex. On this point, preliminary experiments made in British India have proved that the application of nitrate of soda increases the flow of latex and the proportion of rubber produced.

In the course of experiments at Hawaii (Keanoe) with *Manihot* trees, to which Chilean nitrate had been applied at a depth of 4 inches, those to which $\frac{1}{4}$ pound had been applied gave from 1 to 3 ounces of rubber, while those with which $\frac{1}{2}$ pound had been used yielded from 2 to 3 ounces. The action of the fertilizer was noticeable after 48 hours.

As to *Castilloa*, European theoretical experiments have demonstrated the probable value for the purpose in question of salts of lime and potash and of azoted compounds. The opinion has, however, been expressed that the use of potassic fertilizers encourages the development of vegetable parasites; this subsidiary question needing consideration. Lime, it is added, seems to be at present justly attracting the particular attention of planters in the East.

While the results obtained in the Federated Malay States by the use of lime are of interest, they are not, it is believed, of universal application. Where it is impossible to procure a sufficiency of lime at an advantageous price, it is considered questionable whether the attempt to cultivate *Hevea* is advisable.

The soils in the English Asiatic possessions are generally deficient in lime, phosphates and potash, but often contain quantities of azote, particularly in situations formerly covered with virgin forests.

Based on the above facts, there follows an interesting disquisition of the action of fertilizers on turfy, argillaceous and sandy soils; concluding with the following remarks:

"There are consequently arguments for and against the use of fertilizers, either in the form of chemicals, or as a vegetable covering. It is for the planter, after studying the different methods of cultivation, to ascertain for himself, in each particular case what kind of fertilizing is advisable. . . . The question is a very complex one and does not admit of a solution applicable to all cases."

Some Notes on Rubber Planting.

TWO HUNDRED AND FIFTY PER CENT. DIVIDEND

ONE of the briefest and most concise annual reports issued of late by plantation companies, is that of the Pataling Rubber Estates Syndicate, Limited, presented at its ninth annual general meeting on March 21, last. With a paid-up capital equaling \$112,500, the company produced in 1911 rubber to the value of about \$419,000; thus turning over its capital almost four times within a year, and making a net profit of about \$288,000.

Under this fortunate combination of circumstances the company was able to pay three interim dividends, each of 50 per cent. and in addition a final dividend of 100 per cent. This result is due to the fact that the production of 333,044 pounds cost f. o. b. at Port Swettenham 11½d. (23.31 cents) per pound, or including English charges 1s. 7.24d. (39.02 cents); while the average gross price realized was 5s. 0.14d. (\$1.2189).

This company owns 2,206 acres in Selangor, Federated Malay States, of which 1,467 acres are planted. It was incorporated in 1903; plantings following successively until 1908. The first yield was in 1907 of 58,064 pounds, which allowed of paying 35 per cent.; production and dividends increasing until 325 per cent. was reached in 1910. For 1911 there has been a slightly higher yield than in 1910, but the cost of production has advanced, so the dividend is only the modest one of 250 per cent.

ANGLO-MALAY RUBBER COMPANY, LIMITED.

According to the report presented at the London meeting of April 24, the 1911 crop of rubber amounted to 780,972 pounds sold at an average gross price of 5s. 2.54d. (\$1.2670) per pound. The cost, including all London charges, was 1s. 8½d. (41.56 cents). The total dividend paid for 1911 was 70 per cent. For 1912 the crop is estimated at 900,000 pounds.

GOLDEN HOPE RUBBER ESTATE, LIMITED.

The annual report of the above company presented at the London meeting of April 2, recorded a production of 109,555 pounds, costing, including London charges, 1s. 8.91d. (42.23 cents), and realizing a gross average of 5s. 0.43d. (\$1.2229). The dividend upon a paid-up capital equaling \$220,000 was 30 per cent. Sales of rubber in 1911 aggregated about \$140,000. It is estimated that the new year's crop will amount to 150,000 pounds.

LAC INDUSTRY FOR CEYLON.

Lac is a resinous substance, produced by a species of scale insect which lives on the tender branches of certain trees, of which they suck the juice and secrete the resin. In harvesting lac, the branches with resinous incrustations are removed from the trees, the resin being scraped off and graded for export in the form of lac, or shellac, for which there is a large industrial demand.

The systematic cultivation of lac was begun in India comparatively recently, and it is now proposed to extend the system to Ceylon. A paper on the subject was lately read at the Ceylon Board of Agriculture.

MOTOR CARS FOR THE MALAY STATES.

Contrary to the experience of almost every country, the Federated Malay States have been able to carry out their development work without borrowing. Not only are the States free from debt, but they have constructed roads and railways, waterworks and other public works out of revenue, and have built up a reserve fund largely in excess of expenditure. In fact, the finances of the country are in such a healthy condition that the Federation is advancing to Siam the sum of £4,000,000 in order that a railway may be constructed through her Eastern States and thus form a link between Siamese and Malayan territory.

As the "Financial News" remarks, no country possesses a better road system. The mileage at the end of 1909 was 1,875 metalled roads, 225½ unmetalled and 1,477 miles of bridle roads. These roads have a splendid surface, and, consequently, motoring and motor traction are carried on extensively throughout the interior. Motor-car manufacturers in search of fresh fields would find promising territory in the Malay States.

BALATA IN FRENCH GUIANA.

It is stated by officials of that colony that the balata industry should be one of the most important in French Guiana. Balata is produced in three different districts—namely, Mana, Maroni and Iracouba. There is no export duty, and concessions are granted freely to French citizens of good financial standing—the limitations being that no one man shall receive over 25,000 hectares, which is the equivalent of 61,775 acres. There is a fee of 5 centimes (one cent)—per hectare, with a minimum of 250 francs (\$50). The balata of this colony is reported to be of the best quality—but the great drawback has been in this industry—as in all agricultural activities in French Guiana—the difficulty of securing economical labor.

RUBBER OUTLOOK IN PHILIPPINES.

Mr. A. W. Prautch, an authority on rubber planting in the Philippines, recently contributed a valuable article on this subject to "The Cable News," published in Manila. He goes into considerable detail, taking up the question of climate and rainfall, soil, and cost of starting and maintaining a plantation. His concluding paragraph under the caption, "Will Pará Grow Here," is as follows:

"There have been enough experiments in growing Pará rubber in the Philippines to warrant the conclusion that it will succeed here. The Basilan Plantation Company have some hundreds of Pará trees in bearing. They have made two shipments of rubber to Hamburg, Germany; the following is an extract from the report on this rubber: 'The sheets were thin, medium colored, transparent, and of very good quality. It has good nerve and is well prepared. Such rubber will always find a good sale here.' Mr. Thos. D. Aitken visited the Baco River plantation in northern Mindoro; he found a Pará nursery in which the seeds were planted four years ago and left. The outer trees that got light and air measure 16 inches to 22 inches in circumference, three feet from the ground. Some twenty other persons have planted rubber, and the experiments are satisfactory as far as they have gone."

"A MERE DROP IN THE BUCKET."

The daily press when it discourses on rubber is always interesting—if not always instructive. "The Globe" of New York recently had an editorial on the prospect of lower prices for the consumer of tires in which this statement appears:

"Rubber plantations have sprung up all over the world in tropical regions suitable for the rubber tree. Within a few years the cultivated product is likely to form a very considerable percentage of the total supply. At present, of course, it is a mere drop in the bucket."

Considering the fact that plantation rubber produced during 1911 amounted to 14,200 tons, or practically one-sixth of the entire production of crude rubber from all sources, to refer to it as "a mere drop in the bucket," seems rather slighting, even for a care-free and jocund daily. Six of these drops would completely fill the bucket.

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

THE EXPORT DUTY ON BALATA—A SUCCESSFUL AGITATION.

THE annual meeting of the Legislature is now at an end and its most momentous feature, so far as those interested in the balata and rubber industry is concerned, is the abolition of the export tax on balata, together with the rejection of the proposal that all forest produce should be subject to a similar impost. This happy culmination has only been secured by vigorous agitation and untiring opposition. It will be recollected that in answer to the charge that the tax was an invidious one the acting governor wrote a minute to the effect that all forest produce should be laid under a similar tribute.

It was a tactical mistake in the first place to impose an export tax instead of increasing the royalty, for this course placed the critics of the proposal in an unassailable position, and the government in a position where defence was almost impossible. The second mistake, and perhaps it was of even greater magnitude was the suggestion that the export duty should be applied to other forest produce. Such a course did little to remove the charges of discrimination, whilst it greatly increased the volume of opposition. The publication by the acting governor of his famous minute was followed by a series of interviews in the daily newspapers with the leading representatives of the balata and other forest industries, which foretold a sharp conflict if the government pressed its proposal to a division in the Legislature. These gentlemen had little difficulty in demonstrating that they were already handsome contributors to the revenue, and that the export tax was more than the industries were able to support; that it was invidious and unsound; and that the government was pursuing a policy that was not likely to be favorable to the fortunes of the colony. They had a large measure of public opinion with them, and received the cordial support of both daily newspapers in their attitude.

THE LEGISLATION'S DECISION.

The Combined Court went into Committee of Ways and Means on February 25. The acting government secretary, in introducing the budget, pointed out that on account of the industrial stagnation created by the drought he anticipated that revenue during the forthcoming financial year would fall short of the expenditure that had been approved by \$42,000, and if the balata tax was abolished his deficit would be \$66,000. A majority of the committee was sufficiently impressed by the arguments in support of the abolition of the tax to approve of a motion that it should be removed, but only after a lengthy debate in the course of which much opposition was made to the proposal. The motion for abolition came from C. P. Gaskin, who is interested in the industry. Mr. C. F. Wieting, a Water street merchant, said that the industry was growing and it was a question whether it should not contribute to the revenue. Mr. Russel Garnett, local attorney of Curtis, Campbell & Co., said that the company's failure to make profits was due to mismanagement by the men sent out here by the companies, and it was a mistake to ascribe it to the export tax. He agreed, however, that an export tax was wrong, and if the court was in favor of taking it off he would agree, on the understanding that a tax would be imposed in some form next year. He thought the industry would not be overtaxed if it were made to pay 4 cents royalty instead of 2 cents. Mr. Dias, a "people's" representative, charged the government with weakness in allowing itself to be led by the agitation carried on against the tax in London. Dr. Rohlehr said that the industry was paying handsomely and could bear the tax. Mr. Russel Garnett then moved as an amendment that the export tax be abolished and that the royalty should be increased to 4 cents, the addition to be utilized for the benefit of the industry. This was lost on a division by 14 votes to 6, and the motion for the abolition of the tax was carried with only two dissentients.

THE CONTINUATION OF THE DROUGHT—WORK SUSPENDED.

The drought continues with unabated severity and the effect upon the balata industry may be gathered from the fact that the exports to March 28 were only 23,010 pounds, as compared with 72,533 pounds in 1911. The total rainfall has only been 2.41 for the year as compared with 20.33 for last year. We are assured by those experienced in these matters that the rains are some weeks off yet. News has reached us that the conditions in Surinam are infinitely worse than they are here. Operations have been completely suspended in the "bush," and Paramaribo, the capital town, is full of "out-of-works." The government even has to despatch special trains into the interior in order to supplement the water supply. Descriptions of the scenes at the arrival of the trains are graphic and distressing. Although things are not so bad here, conditions are very bad. Very few expeditions are being despatched and those that are report the greatest difficulty in reaching their destinations. An idea may be gleaned of the severity of the drought if I add that gold-diggers are working some of the beds of the rivers for gold.

The reports from the interior are now serious, and navigation is difficult from Rockstone onwards, the point where most of the balata expeditions proceed, and from Tumatumari—which is now about four days' distant instead of about 12 hours as normally—it is impossible. Bush is burning freely on the river banks, and it will be interesting, when work does commence again, to ascertain if the balata tracts have been affected thereby. Most of the companies have been advancing to their laborers, but, nevertheless, there is much distress and the Government has appointed a committee with wide powers to devise relief works for those who are in need and who want work.

THE BALATA INDUSTRY AND THE RESOURCES OF CIVILIZATION.

In the Combined Court Dr. Rohlehr asked an interesting question which elicited much useful information. He asked for a report showing the number of laborers registered for the gold, diamond, balata and timber industries of the colony; who is responsible for their medico-surgical care; how many have died within the last 5 years; how many succumbed while on the way to the hospitals in Georgetown, New Amsterdam or Suddie; what were the reported causes of death, and what were the qualifications of those persons who furnished the death certificates? The acting government secretary said that there were 7,118 registrations of balata laborers, that in the Northwest district there were hospitals at Morawhanna and Arakaka, with a medical officer and a dispenser in charge respectively; for the Cuyuni, Mazaruni and Puruni District a hospital at Bartica, in charge of a medical officer; for the Potaro District a cottage hospital; for the Demerara River District a dispenser; for the Pomeroun and Moruca Districts a medical magistrate, and three dispensers; for the Berbice River District a dispenser. No information could be given regarding the number of deaths within five years either on the grants or in transit. Death certificates need not be produced when a death was registered. The registration was made by the government medical officer when the man died in hospital; by a registered medical practitioner if so attended and by a relative or friend when not so attended, and the probable cause of death given.

APPOINTMENT OF A GOVERNOR—A RAILWAY BUILDER.

Sir Walter Egerton, Governor of Southern Nigeria, has been appointed governor of this colony to succeed Sir Frederic Hodgson. Sir Walter Egerton has had a very brilliant career in the Colonial Civil Service, and his regime in Southern Nigeria has been remarkable for the manner in which he has developed the railway system of that tropical country. As I have said before, if the *hinterland* of this colony is to be developed a railway is required, and Sir Walter Egerton seems to be the man to build it.

if the local Legislature which controls the "money bags" will let him. He will, in all likelihood, have the cordial support of the Secretary of State, who, in his despatch, stated: "His Majesty is pleased to approve of the appointment of Sir Walter Egerton, Governor of Southern Nigeria, to be Governor of British Guiana. I am glad that resolution recently passed by Combined Court with regard to emoluments of the office enabled me to recommend to His Majesty the King for this important post an officer whose administration has produced such striking results in developing the resources of Southern Nigeria.—Harcourt."

BOARD OF AGRICULTURE—INCREASED DEMAND FOR RUBBER SEEDS.

At a meeting of the Board of Agriculture, held on March 25, attention was drawn to the fact that the price of rubber plants for sale had been altered. The Director of Agriculture pointed out that this was necessary, as they had received orders for about 100,000 plants more than previously. Orders had been sent to the Straits Settlements for 150,000 Pará rubber seeds for the next five years; hitherto, they had been able to get 60,000 only. He pointed out the importance of knowing what trees they were getting the seeds from, as by importing casually they might get seeds from trees that gave excellent yields of seeds, but which did not yield rubber in great quantities. The department was going to select a system of testing packages of Pará rubber seeds to determine the rate of germination, etc., and getting the necessary certificates. This increased demand for plants betokens an increased interest in the culture of rubber. The Bartica Agricultural Estates, Ltd., for instance, now has a large acreage cleared ready for planting.

THE BARTICA AGRICULTURAL ESTATES—ARRIVAL OF A PARTY OF STOCKHOLDERS.

On April 1 Mr. Lindley Vinton, treasurer of the Bartica Agricultural Estates, Ltd., arrived in Georgetown from New York on the Q. L. S. *Parmia* with a party of seven stockholders. The party left for the estates on April 2, and returned on April 5. In an interview, Mr. Vinton stated that the company has ordered a complete plant for the preparing of sisal, which commodity is now ready for harvest. The machinery will be shipped from



EIGHTEEN-MONTHS-OLD HEVEA, "THE HILLS" B.G.

New York. They were going ahead with their rubber cultivation and would this year increase their rubber cultivation from 600 to 1,000 acres.

A MILLION ACRES OF PLANTATION RUBBER.

WHILE estimates affecting other parts of the world are necessarily more or less approximate, the figures available with regard to Asiatic rubber plantations are sufficiently exact to afford a basis of calculation.

In a recent issue the "Revue Internationale," after discussing the various items of which it is composed, put forward an estimate of the surface planted in Asia with rubber, of 826,541 acres.

By a detailed comparison of this estimate with the recent figures of Mr. D. Milton Figart, United States Vice-Consul General at Singapore (published by THE INDIA RUBBER WORLD, January 1, 1912, p. 161), the following results are shown:

ESTIMATED RUBBER ACREAGES, 1910.

	Revue Internationale.	Mr. Figart.
Malaya	362,853	362,853
Ceylon	238,822	241,885
Java	106,664	.....
Sumatra	80,000	.....
Netherlands India (Java & Sumatra) .....	.....	150,000
India and Burma.....	26,202	43,525
Borneo	12,000	.....
Cochin China .....	.....	11,000
Total	826,541	809,263

The first estimate, while higher than others which have recently appeared, is considered by the writer of the article to fall short of the exact conditions.

With regard to Africa, it is added that the cultivation of rubber is extending, there being in the German East and West African colonies and in the French colonies several thousand hectares (of 2.47 acres) planted with *Funtumia*, *Ceara* and *Hevea* part of the trees being in a productive condition.

In Mexico there are, it is stated, 100,000 acres planted in rubber. The acreage in British Guiana is stated to be 1,700 acres, of which 1,000 are in *Hevea* alone. In Dutch Guiana there are said to be 800 acres in *Hevea Brasiliensis*, 17 plantations being engaged in the cultivation of this variety. Trinidad and Tobago have, it is added, 2,300 acres under cultivation, planted with about 85 per cent. of *Castilloa*, 11 per cent. *Hevea*, and 4 per cent. of *Funtumia*.

Taking as a basis the French estimate for Asia quoted above, and adding to it the figures given for the other parts of the world, the result would be approximately as follows:

	Acres.
Asia	826,541
Africa (say)	10,000
Mexico, etc. (say).....	100,000
British Guiana	1,700
Dutch Guiana	800
Trinidad and Tobago.....	2,300
Total	941,341

These figures applying to 1910 and being, moreover, avowedly incomplete, it is evident that by allowing for 1911 even a normal amount of new planting, the "million acres in plantation rubber" which has been spoken of has possibly been already exceeded.

In its concluding sentence the article thus deals with the general question of plantation vs. wild rubber:

"Plantations may therefore seriously compete with the production of wild rubber; but the contest, while becoming keen, is not destined to cause wild rubber to disappear, if its production is rationally conducted, if the methods of extraction correspond with the physiology of the trees, and if . . . replanting takes place under conditions of natural vegetation."

The Rubber Goods Manufacturing Co.'s Annual Report.

At the thirteenth annual meeting of the stockholders of the Rubber Goods Manufacturing Co., held at its office in Jersey City, New Jersey, April 11, 1912, the president submitted the following report:

The net sales for the year ending December 31, 1911, were \$34,587,269.15 as compared with sales of the previous year of \$35,188,295.40, showing a slight decrease. This is entirely accounted for by the lower selling prices prevailing the past year, as compared with the previous year, the quantity of goods sold being largely in excess.

There has been a falling off in sales of mechanical and miscellaneous goods, due to general business conditions. Especially is this true of goods sold to the railroads. On the other hand, the sales of automobile and other tires have greatly increased.

The profits are more satisfactory than in any year in the history of the company, being \$3,500,997.23, as compared with 1910—\$2,122,247.62, and 1909—\$2,369,971.61, the profits of 1909 being up to that time the largest since the organization of the company.

The president in his last annual report referred to the organization of the United States Tire Co. and mentioned briefly the plan of marketing through that company the entire production manufactured at the Hartford, Morgan and Wright, G. & J. and Revere factories.

The United States Tire Co. was organized for the purpose on March 1, 1911; agencies have been established in many of the principal cities and large expenses have been involved while making the change, and it has taken the better part of last year in which to perfect these organizations. However, the policy has proven successful and great benefits should be derived therefrom in the future.

While the development of the United States Tire Co. has been going on, much progress has also been made in improving our factory organizations, operations and equipment. Extensive improvements and additions have also been made at several of our mechanical factories during the year.

The twenty-story building which is being erected by the United States Rubber Co. on the southeast corner of Broadway at Fifty-eighth street will be ready for occupancy by the United States Tire Co. within a short time. It has also been determined to transfer the offices of the Rubber Goods Manufacturing Co. and the General Rubber Co., as well as those of the United States Rubber Co. itself, to the new building. The locating of all of the principal offices of these companies in one building will unquestionably result in more efficient management of the business, as a whole.

Crude rubber prices declined during the first six months of 1911, the fluctuations being quite marked—fine Pará rubber selling in March at \$1.68 per pound and in June at 94 cents per pound. The prices during the last six months of the year were fairly steady, and at the end of our fiscal year, December 31, 1911, the price of fine Pará was \$1.04.

Respectfully submitted,

ELISHA S. WILLIAMS, *President*.

TREASURER'S REPORT.

(Of Rubber Goods Manufacturing Co. and Subsidiary Companies.)

CONSOLIDATED GENERAL BALANCE SHEET, DECEMBER 31, 1911.

ASSETS.

Property, Plants and Investments...	\$26,602,908.44
Patents and Trademarks.....	1,570,577.89
Inventories, Mfd Goods and Materials	\$10,495,130.68
Cash	2,043,593.70

Bills and Accounts Receivable.....	6,915,644.60
Stock Owned in General Rubber Co.	1,666,700.00
Securities Owned	383,450.00
Miscellaneous Assets	2,050,150.00
	292,136.03
Total assets	\$49,970,141.34

LIABILITIES.

Capital Stock, Preferred.....	\$10,351,400.00
Capital Stock, Common.....	16,941,700.00
	\$27,293,100.00
Bonds of Mechanical Rubber Co. and N. Y. Belting & Packing Co. (less amount owned).....	974,510.00
Sinking Fund Cash in hands of Trustee	302,220.94
	672,289.06
Reserve for Redemption of Bonds...	454,326.12
Bills and Accounts Payable.....	7,164,541.31
Accounts Payable to General Rubber Co.	3,591,355.13
Reserve for Federal Excise Tax.....	34,433.81
Fixed Surplus (Subsidiary Companies)	2,499,218.65
Surplus	8,260,877.26
Total liabilities	\$49,970,141.34

Of the above "Assets" and "Surplus" \$185,234.21 represents the ratable interest therein of minority stockholders in Subsidiary Companies of the Rubber Goods Manufacturing Company.

Contingent liabilities for certain guarantees, which are offset by corresponding contingent assets, are not included.

CONSOLIDATED SUMMARY OF INCOME AND PROFIT AND LOSS FOR YEAR ENDED DECEMBER 31, 1911.

(Of Rubber Goods Manufacturing Co. and Subsidiary Companies.)

Net Sales	\$34,587,269.15
Earnings	3,607,895.87
Income from Investments.....	100,000.00
	\$3,707,895.87
LESS:	
Expenses of Home Office.....	206,898.64
Net Profits	\$3,500,997.23
*Dividends	\$2,159,761.93
Depreciation on Patents and Trade-marks	46,543.43
	2,206,305.36
	\$1,294,691.87
Transferred from Reserves to Surplus.....	407,653.72
Surplus for the Period.....	\$1,702,345.59
Surplus and Working Capital January 1, 1911....	6,558,531.67
Surplus and Working Capital December 31, 1911..	\$8,260,877.26

Respectfully submitted,

EDWARD J. HATHORNE, *Treasurer*.

*Includes \$79,827.93 paid minority interests in two Subsidiary Companies.

The same board of directors was re-elected, namely:

ANTHONY N. BRADY,
SAMUEL P. COLT,
FRANK W. EDDY,
JAMES B. FORD,
ERNEST HOPKINSON,

CHARLES A. HUNTER,
ARTHUR L. KELLEY,
LESTER LELAND,
HOMER E. SAWYER,
ELISHA S. WILLIAMS.

At the first meeting of the new board, held on April 12, the following officers were re-elected:

President.—ELISHA S. WILLIAMS.

Vice-Presidents.—LESTER LELAND and CHARLES A. HUNTER.

Treasurer.—E. J. HATHORNE.

Assistant Treasurer.—JOHN D. CARBERRY.

Secretary.—SAMUEL NORRIS.

Assistant Secretary.—JOHN D. CARBERRY.

Executive Committee.—Elisha S. Williams, Lester Leland, Anthony N. Brady, Samuel P. Colt, Ernest Hopkinson, Charles A. Hunter and Homer E. Sawyer.

The following record of the volume of net sales by the Rubber Goods Manufacturing Co. and its subsidiary companies for the past ten years is compiled from the company's annual reports:

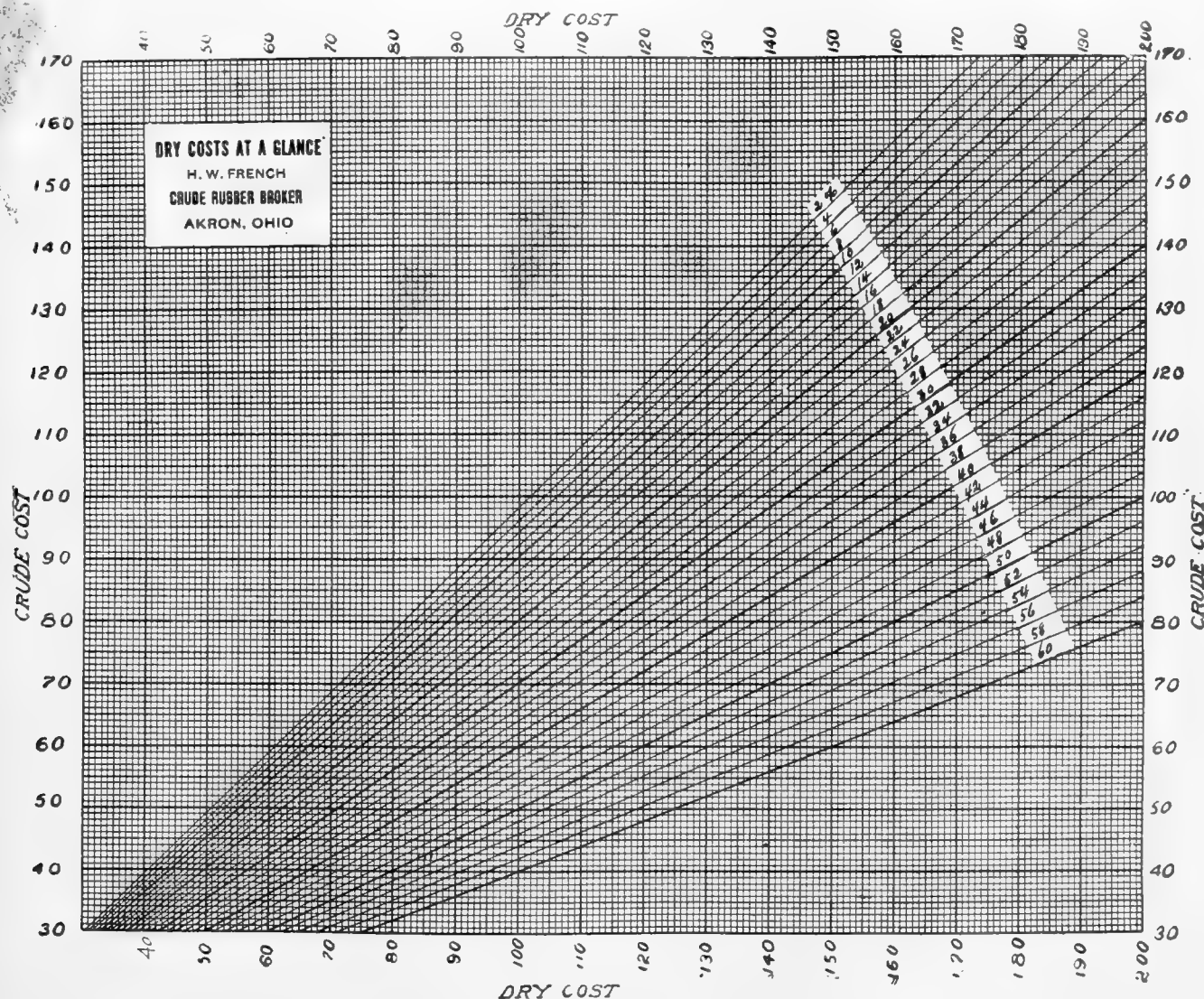
1902	\$13,999,329.00	1907	\$21,473,823.28
1903	14,310,752.00	1908	18,491,987.90
1904	14,556,289.00	1909	25,629,542.71
1905	17,662,453.00	1910	35,188,295.40
1906	19,737,120.81	1911	34,587,269.15

OUR NATIONAL FINANCIAL GROWTH.

THE Statistical Abstract issued annually by the Department of Commerce and Labor through its Bureau of Statistics, the thirty-fourth number of which has just made its appearance, shows that the money in circulation has increased from \$12 per capita in 1850 to \$34 per capita in 1911; the bank clearings, from 52 billion dollars in 1887, the first year for which an official record was available, to 159 billions in 1911; the individual deposits in banks, from 2 billion dollars in 1875, the earliest year for which figures are available, to practically 16 billions in 1911; the number of depositors in savings banks, from 1 million in 1866, to 9½ millions in 1911; the exports of domestic products, from a little over 100 million dollars in 1840 to over 2,000 millions in 1911; and the value of manufactures produced in the country, from 1 billion dollars in 1850 to 20½ billions in 1910.

DRY COSTS AT A GLANCE.

With a view to simplifying calculations of the dry cost of rubber at varying percentages of shrinkage, Mr. H. W. French, crude rubber broker, of Akron, has issued a chart based on the principle of intersecting lines. It includes 30 various percentages, applied to crude costs, from 30 cents to \$1.70, and giving the equivalent in dry costs, ranging from 40 cents to \$2. The table is ingenious and would apparently shorten such calculations, always a desideratum in these busy days. The chart is herewith reproduced on a somewhat reduced scale.



Obituary Record.

LEONARD J. LOMASNEY.

L EONARD J. LOMASNEY, first vice-president and sales manager of the Republic Rubber Co., Youngstown, Ohio, died at his home in that city on April 9. His funeral was held on Friday afternoon, April 12.

Mr. Lomasney was born in June, 1870, in Nashville, Tennessee. He became identified with the rubber trade in 1896, when he took the position of traveling salesman in the South with the Peerless Rubber Manufacturing Co., of New York city. Two years later, because of his marked ability, he was made sales manager of the mechanical department of the Peerless company, and in that position became intimately associated with the late Charles H. Dale. He remained with the Peerless company until 1904, when he joined the Republic Rubber Co. as sales manager and first

Those who were present on that occasion will regret to hear of Professor Rotch's death, which occurred on April 8, in Boston, after an operation for appendicitis. Professor Rotch was 51 years old. He was a graduate of the Institute of Technology, but had been connected with Harvard for a number of years. He founded and directed, up to the time of his death, the famous Blue Hill Observatory. He was the first one in this country to take atmospheric observations several miles above the earth by means of instruments attached to kites and balloons. He was a member of many scientific societies, and many foreign orders of distinction had been conferred upon him. He was a member of an old Milton family and the son of Benjamin S. Rotch. He left a wife and three children.

Under the provisions of Professor Rotch's will, the Blue Hill



THOMAS MCILROY, JR.



LEONARD J. LOMASNEY.



A. LAWRENCE ROTCH.

vice-president; having the year previous married Miss Arms, the daughter of the late Werner Arms, at that time president of the company.

He was a man of very attractive personality and unremitting in his efforts to advance the interests of his company, and under his management the work of the sales department was carried on with signal success. During the last few months of his life his health had been greatly undermined; he had been confined to his room since last November and his death had been expected for some time. He is survived by a widow and three children—two sons and a daughter.

PROFESSOR A. L. ROTCH.

The members of the Rubber Club of America, who were present at the Aeronautic Symposium, held by the club on December 13, 1909, in the rooms of the Algonquin Club, Boston, will remember very distinctly the first speaker of the evening, Professor A. Lawrence Rotch, of the Meteorological Department of Harvard College. He gave an exceedingly interesting talk on the various kinds of kites and balloons which he used, to carry recording instruments into the upper atmosphere, by which he recorded the temperature, pressure and currents to a height of ten or twelve miles. He pointed out at that time how this information, when put in tabulated form, would result eventually in producing reliable charts of the upper air for the use of the aeronaut.

Meteorological Observatory, its equipment, and all the buildings connected with it, will become the property of Harvard University. Professor Rotch also bequeathed to the university \$50,000, the income of which is to be used for the maintenance of the observatory.

THOMAS MCILROY, JR.

T. McIlroy, Jr., for forty years a well-known figure in rubber circles in this country and Europe, died in San Antonio, Texas, April 6, and was buried in Oakwoods Cemetery, Chicago, April 11.

Mr. McIlroy was born in Brampton, Ontario, Canada, on July 23, 1854. His parents moved to New York in 1863 and he was educated in the public schools of that city. He entered the employ of the Gutta Percha & Rubber Manufacturing Co. of New York when he was about 17 years of age. At 18 he was on the road for that company, introducing and selling their rubber fire hose. He later established a branch warehouse for that company in Toronto, Canada, and a few years later erected a large factory for the Gutta Percha & Rubber Manufacturing Co. at Parkdale, a suburb of Toronto. That factory later became one of the largest of its kind in the world.

After twenty-five years' continuous service with the Gutta Percha & Rubber Manufacturing Co. he organized his own company under the name of the Toronto Rubber Co., and built works

at Fort Dalhousie, a Canadian town near Niagara Falls. This factory manufactured rubber boots and shoes and a general line of mechanical rubber goods. Mr. McIlroy being offered what he considered a satisfactory price for his interest in the Toronto Rubber Co. sold out some fifteen years ago and became interested in the Gandy Belting Co. of Baltimore. Mr. McIlroy traveled throughout the entire world in the interests of that company, establishing selling agencies in Egypt, India, South Africa, China, Japan, Australia, the Philippine Islands and in all European cities.

Last year he spent several months in South America, but he was not in robust health, and the climate of that section was too severe for him. Upon his return to Baltimore last fall he was in a weakened condition; but, not withstanding his ill health, he insisted on going to Havana, Cuba, in January. He returned via New Orleans and was passing through San Antonio, with the intention of visiting Pacific Coast cities, when he was compelled to take a rest. He failed very rapidly. His wife, son and his brother Frank, president of The McIlroy Belting & Hose Co. of Chicago, Illinois, were with him when he died. He leaves a widow and three children.

WILLIAM H. FURBER.

William H. Furber, for many years connected with the Boston Belting Co., died at his home in Newton, Massachusetts, April 15, aged 84 years. Mr. Furber was born in Boston in 1828, and entered the employ of the Boston Belting Co. in 1852. In 1874, after serving for several years on the Board of Aldermen, he was elected Mayor of the city of Somerville. After several years in other lines of activity he returned to the Boston Belting Co., and after the reorganization of that corporation was for several years general manager and chief executive. Retiring from that position, he remained upon the board of directors, continuing to hold that office until his death. Of late years he had lived with his son, who, like his father, took an active interest in the affairs of his residential town and served the city of Newton as Mayor. Mr. Furber left a widow and a married daughter, besides the son, who bore the same name, mentioned above.

ALEXANDER STRAUSS.

The sudden death of Alexander Strauss occurred April 10, in the New York office of the Braender Rubber and Tire Co., Rutherford, New Jersey. He was engaged in dictating correspondence when he fell back in his chair dead.

Mr. Strauss had been connected with the rubber business for many years. He was employed as a salesman by the New York Belting and Packing Co. for about 15 years. By profession he was a mechanical engineer and was endowed with a strong inventive faculty. While with the New York Belting and Packing Co., he invented the Strauss tip tire and developed an emery wheel, which proved particularly efficient and was extensively sold. About 15 years ago he left the above company and became associated with the Goodyear Tire and Rubber Co. Later he entered the employ of the Braender Rubber and Tire Co., and continued in that position until the time of his death. He was 60 years old. He left a wife, three sons and two daughters.

WASHINGTON A. ROEBLING, 2nd.

Among the nearly 1,700 victims of the horrible *Titanic* disaster was Washington A. Roebling, 2nd, son of Charles G. Roebling, and grandson of John A. Roebling, who founded the firm of John A. Roebling Sons' Co., Trenton, New Jersey.

Washington A. Roebling 2nd was only 31 years of age, but he had already given promise of exceptional capacity. He possessed pronounced mechanical ability, and had given a great deal of attention to the development of motor engines. He associated himself with the Mercer Auto Co. and the Mercer Auto Tire Co., in both of which he was an officer. He was credited with the invention of an automobile engine of a new and valuable

type. He had marked athletic tendencies and was famous as a golf and tennis player, and in his school days had an inter-scholastic reputation as a ball player. While naturally quiet and reserved, he had a most attractive personality, and was exceedingly popular in a wide circle of friends.

RUBBERIZED AUTO TOPS.

"THE HUB" discourses as follows on the construction of tops for automobiles and the necessity of rubberized material if the tops are to withstand all kinds of weather:

The materials used in top manufacture are cotton twill, mohair, leather and imitation leathers. The twill and mohair combinations are largely used for tops for cars larger than a demi-tonneau, while for high-grade runabouts and victorias leathers and imitation leathers are often used. The class of goods that sometimes finds its way into cheap tops is not waterproof, and, in the case of a heavy downpour or of exposure for any length of time in the rain, will permit the moisture to penetrate and leak through into the car.

The usual material employed is made of two layers of fabric cemented or vulcanized together with a rubber compound. This makes the two layers as solid as if of one piece and renders them waterproof. The rubbering or vulcanizing process is the most important. Upon the manner in which it is carried out, the amount of rubber used and the quality of the rubber, will depend its serviceability. The exterior and interior layers of fabric often differ in quality, and where mohair is employed the exterior layer is mohair while the backing is usually cotton twill. A cheaper class of material is plain twill, where two layers of the twill are vulcanized together.

The appearance of a top made of mohair is superior to that made of ordinary fabrics. It has a luster and is non-absorbent; consequently the rain runs off it easily. Mohair is goat hair, and is a good deal coarser than cotton; consequently the meshes of the weaving are larger than those found in cotton twill. There are several imitations of mohair which are in reality made from cotton, with a little silk added in the manufacture, to give the required luster. In these, the silk very soon wears off, leaving the material ragged. The mohair stratum is very thin and when seen in the unsolutioned state has the appearance of a thick veil. For this reason it is inclined to wear and fray if the slightest friction is allowed while the top is folded. Mohair requires very careful handling in the manufacture, and only the best quality of rubber solution should be used with it; otherwise it will become detached from the foundation and fray.

Gray is popular in top manufacture. It is composed of alternate strands of gray and black hair, but can be varied in many ways to give the requisite shade. The color of the material used is no indication of the quality, although if a special shade is desired that does not come through in the ordinary course of manufacture, it will probably cost more to have the material specially dyed.

Where a leather effect is desired a material known as auto leather is largely employed. It has the appearance of leather, but is in reality a composition that is mounted on suitable backing, either of cotton, wool or mohair. Cotton is often used, owing to the fine mesh and its ability to more readily absorb the waterproofing material. Any type of leather can be imitated nowadays, ranging from a delicate morocco to the ordinary hide variety. Sun, heat and damp are the enemies of this material, as it is liable to crack, in which case the rain will find an easy path through the cracks and in time it will rot the backing.

It is stated that the Society of Automobile Engineers has leased a suite of offices in the new United States Rubber Co. building at Broadway and Fifty-eighth street. It is expected that the building will be ready for occupancy by the middle of the summer.

EDITOR'S BOOK TABLE.

IN THE AMAZON JUNGLE. ADVENTURES IN REMOTE PARTS of the Upper Amazon River, including a sojourn among cannibal Indians. By Algot Lange. With an introduction by Frederick S. Dellenbaugh. With 86 illustrations from original photographs by the author. G. P. Putnam's Sons, New York and London. [Cloth, 8vo., Pp. 101.]

THE story, "In the Amazon Jungle," by that intrepid traveler, lecturer and writer, Algot Lange, although it has to do with scenes and characters in the heart of the rubber country along the tributaries of the upper Amazon, is not primarily a rubber story. It is rather a book of moving adventure; and while it will not add materially to a rubber man's technical stock of knowledge, it will afford him—as well as the general reader—many sensations and a succession of thrills.

The author begins with his landing in January, 1910, at a spot called Remate De Males (not to be found on many maps) at the confluence of the Iticoahy with the Javary river, some miles above the point where the Javary flows into the Marañon or upper Amazon. This little hamlet on the river banks is about a thousand miles above Manaus, so it will be appreciated at once that it is well into the rubber country. After many unusual experiences, the author gets an opportunity to continue about twenty days' journey up the Iticoahy to the *seringal* of a millionaire shipper of rubber. Here follow more remarkable experiences—among them the undoing of a 54-foot river boa-constrictor. After several months of *seringal* life full of exciting incidents, he joins a party of six *seringueiros* on an expedition into the untracked jungle to discover virgin rubber trees. While this proves to be a successful expedition in the matter of locating trees, it ultimately results in a sad tragedy, as three of his six companions are summarily taken off by the swift fatalities common in that region—one by a deadly snake bite, one by swamp fever, and one by the dreaded beri-beri. The author, separated from his surviving companions, and reduced by fever and starvation to the last notch of vitality, creeps through the jungle on hands and knees, and finally falls unconscious on the edge of a little clearing, which proves to be the camp of a cannibal tribe. The weeks which he spends in the hospitable and kindly companionship of these cannibals comprise the most interesting chapters of his book. He describes their method of life, the ingenious traps they set for their enemies, their method of warfare, the variety of weapons they use, and the distinctly reprehensible manner in which they treat the enemy after he is vanquished and slain. Finally, through the generous offices of his cannibal hosts, he is returned to his friends at the *seringal*, where he seizes the first possible means to terminate his year's sojourn in the country of the Amazon.

The story is written in a direct and simple style, which makes the recital most convincing—even where it is altogether without precedent or parallel among the narrations of other explorers. It is a book that will appeal to all who enjoy, in print at least, strange adventures in far-off and unfamiliar lands. The seventeen-year-old boy will find life in the Quiet town high school rather drab and dull compared with this wonderful country where lizards grow four feet long, and supple warriors blow poisoned arrows through ten-foot reed guns with force enough to bring down the monsters of the jungle. He will probably chafe for some days after reading this story over the drear commonplaceness of his surroundings; but the author can't help that. He has set down the facts as they befell; and if many of them seem rather remarkable and others of them quite ridiculous, that's the reader's gain.

A consular report is authority for the statement that one Hawaiian rubber plantation will have 40,000 trees tappable at the end of 1912. It is expected to secure 6,000 pounds of rubber during this year. From 23,000 trees recently tapped 1,200 pounds of dry rubber were secured, the first shipments to New York realizing \$1.01 per pound for the best.

NEW TRADE PUBLICATIONS.

THE B. F. Goodrich Co., Akron, Ohio, has recently sent out a little folder of 8 pages descriptive of the new Master Tread tire made by this company, which in the words of the folder is "the last word in non-skid tires." This tire is not intended in any way to supersede the popular Goodrich-Bailey, but is rather in addition to that tire, to please people who may want something different. The distinguishing feature of the "Master Tread" is its general ruggedness. The shape and arrangement of the projecting studs on this tire suggest a chain of thick, heavy rubber buttons running in a straight line along the top of the tread and in zigzag lines along the edge, so as to oppose varying angles of rubber against any side-slipping movement.

The Goodyear Tire and Rubber Co., Toronto, Canada, sends out a booklet of 32 pages, entitled "Rubber Belting," which is the first of a series to be issued by this company covering all the lines of mechanical rubber goods which the company manufactures.

In our April number we had a paragraph describing three very handsome catalogues issued by the Boston Woven Hose and Rubber Co., Cambridge, Massachusetts. These three books, one describing belting, the second mats and matting, and the third fruit jar rings, were of uniform size and similar in character, but all distinct in design. They were all alike, however, in this—that they were exceptionally fine specimens of catalogue making. We have just received two more catalogues belonging to the same series and equally handsome in cover design and in the treatment of text. One is entitled "The Hose Book," and the other "Brass Fittings." Both have covers of handsome mottled effect with decorative designs, the hose book cover being printed in two shades of green, black and gold, while the other cover is printed in brown, a light blue, black and gold. The hose book contains 48 pages, printed in black and green on a light green tint. It is generously illustrated, showing a birds-eye view of the factory, a number of interior views, agricultural, mining, construction and dredging scenes where hose is having practical application, and in addition it contains many fine half-tones of sections of the hose made by the company, which covers practically every variety, from hose $\frac{1}{4}$ inch in diameter for gas and sprays to 30-inch hose for dredge and excavating work. The brass fittings book contains 32 pages, printed in black and yellow on a stock of yellowish tint, and describes, with many illustrations, couplings for garden hose, mill hose, suction, steam and fire hose, beside spray nozzles and lawn sprinklers.

The Springfield Rubber Co., Springfield, Massachusetts, which, early in March distributed a very attractive catalogue of rubber clothing, has lately followed that by an equally attractive and somewhat larger catalogue descriptive of rubber footwear. This booklet consists of 64 pages with an artistic cover, and shows by a large number of handsome half-tones the variety of footwear carried by this concern, consisting chiefly of the Boston and Woonsocket brands—both of which, it will be noticed, have recently taken on new trade mark emblems—the Boston showing a hub trade mark, and the Woonsocket having as a trade mark the head of an elephant, and being called the "Elephant Brand."

The J. P. Devine Co., Buffalo, New York, has recently issued a catalogue of 40 pages descriptive of its vacuum drying, evaporating and impregnating apparatus. This company has made over 2,500 vacuum dryers for various materials and quite a number of these dryers are illustrated in this catalogue. The one, however, which will be of special interest to the rubber trade, is a vacuum drying chamber made of cast or wrought iron with surface condenser and vacuum pump, which is shown on page 12. This dryer consists of a chamber or cylinder which is closed hermetically at one or both ends by large doors. It contains a number of steam and water-tight heating shelves or pipes placed

one above the other through which steam or hot water is circulated to produce the required degree of heat. The material to be dried is placed on these shelves in trays made of suitable shape and material. This dryer is designed to remove moisture rapidly and at a low temperature from materials that are in any way sensitive to heat.

The Kelly-Springfield Tire Co., Akron, Ohio, has sent out a little 10-page folder entitled "Solomon's Shrewdness," which, in brief text and with a series of diverting illustrations, tells how the wise Solomon distinguished between a natural rose and an artificial one, using this anecdote as a text for a little advice on the best way to select a serviceable tire.

The Boss Rubber Co., a wholesale tire concern, of Denver, Colorado, has issued a catalogue of 32 pages entitled, "Have Your Motoring Appendix Removed," which is designed to show that the way to remove all tire trouble is to get one of the tires handled by this enterprising house. There is much other information in the little book.

A booklet entitled "Minor Repairs and the Care of Tires" just issued by The Firestone Tire and Rubber Co., Akron, Ohio, tells the most effective way for a motorist to make repairs on his tires and inner tubes, and contains also a list of suggestions on the care and preservation of tires in order to get the utmost service from them. This booklet will be sent free upon request.

The General Bakelite Co., 100 William street, New York, has recently issued a booklet of 44 pages, entitled "Bakelite, Information No. 2." As its name implies, its mission is to give information regarding Bakelite. This is not merely a mixture or a so-called compound like many rubber or resinous compositions, but is a well-defined chemical substance of specific properties. In the formation of Bakelite two strong smelling liquid substances, carbolic acid and formaldehyde, are used, but they react chemically upon each other and solidify into a transparent, amber-like substance which is entirely devoid of odor and taste. The book describes in considerable detail the properties and uses of Bakelite in its various forms.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta percha for the month of February, 1912, and for the first eight months of five fiscal years, beginning July 1:

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
February, 1912.....	\$193,699	\$62,689	\$652,434	\$908,822
July-January	1,297,422	1,076,492	3,987,743	6,361,657
Total, 1911-12.....	\$1,491,121	\$1,139,181	\$4,640,177	\$7,270,479
Total, 1910-11.....	1,354,060	1,699,371	3,899,406	6,952,837
Total, 1909-10.....	1,233,910	1,437,252	3,053,753	5,724,915
Total, 1908-09.....	896,362	1,013,544	2,454,707	4,364,613
Total, 1907-08.....	924,585	1,305,352	2,485,307	4,715,244

The above heading "All Other Rubber," for the month of February, 1912, and for the first eight months of two fiscal years, beginning July 1, includes the following details relating to tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
February, 1912.....	\$267,036	\$57,912	\$324,948
July-January	1,374,337	291,460	1,665,797
Total, 1911-12.....	\$1,641,373	\$349,372	\$1,990,745
Total, 1910-11.....	1,194,720	368,029	1,562,749

RUBBER GOWNS FOR SYMMETRICAL LADIES.

A recent issue of a New York evening paper contained a two-column story, generously illustrated, highly entertaining and undoubtedly veracious in some of its details, regarding a social leader from Chicago who was clad in a rubber gown of wonderful hues, but chiefly noticeable because it followed her every movement so religiously.

A lady reporter followed the society leader to her stopping place and further investigated this remarkable garment, describing it with more than the usual lady-reportorial genius.

"It seemed to me there had been no room left, even for improvement. Shimmering bands of pale yellow elastic formed the bodice of Mrs. Von Nisson's gown. They caught the light in different places as she breathed. They made faint, protesting sounds as she moved, like the strings of a violin drawn tight. At her ankles her train widened into a glistening circle about her feet."

Just how much fine upriver Pará there was in this lady's garment cannot be definitely stated, but viewed as a broad sartorial proposition, why should not the ladies wear rubber gowns? They certainly would be vastly more comfortable than the hobble creations in which so many of them have lately appeared. A rubber gown with a reasonable amount of elasticity would certainly render it much more possible for women to navigate the sidewalks and to mount the steps of a street car, than the gowns so many of them now affect, which render walking difficult and awkward and mounting steps impossible. Then again, it would render the wearer immune to passing showers, and if to it were added a rubber hat with rubber ribbons and rubber plumes, even the equinoctial storms would become unconsidered trifles.

SOME SPRING ADVICE FOR TIRE USERS

It is announced that the membership of the Service Bureau of the United States Tire Co., has reached the 18,000 mark. The latest bulletin sent to these members in the line of spring suggestions contains among other items of tire advice, the following timely recommendations:

Before finishing the tuning up of a car for the coming season take the casings off and examine the rims. If they are rusty scrape and paint them. Don't put the casings back until the rims are absolutely true and free from dents. Sprinkle soapstone into the casings before replacing the tubes.

If the rear tires are worn get a new pair for the rear, and move the old casings to the front wheels where the service is easier.

Test the alignment of the axles. The easiest way is to measure between the felloes of the wheels or the edges of the rims at the point directly in front of the axle. If this measurement differs from the same measurement taken on the opposite side of the wheels, it shows the axles are out of alignment. This defect should be corrected immediately.

Get a good pressure gauge and use it regularly throughout the season.

If new accessories are added this spring, be sure they do not bring the weight of the car above the weight the tires are designed to carry. If in doubt about this matter be on the safe side and get larger size tires.

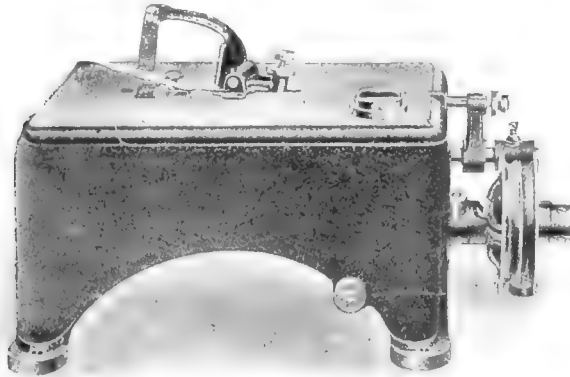
THE SOUTHLAND COMPANY'S MEXICAN PLANTATION.

The secretary of the Southland Rubber Co., of Spokane, Washington, recently received word regarding the operations on the company's plantation in the Palenque district, state of Chiapas, Mexico, to the effect that 100 of the 1,000 acres owned by the company at that place had been cleared up since the first of February last. It is the expectation of the company to clear the entire tract and plant it to rubber.

AN EDGE CEMENTING MACHINE.

The British United Shoe Machinery Co., Limited, of the Union Works, Leicester, England, are an amalgamation of the interests of Pearson & Benin, Limited, The English & American Machinery Co., Limited, and the International Goodyear Shoe Machinery Co., U. S. A. They make a specialty of producing all the latest shoe and harness making machines, and we give here-with a cut of their No. 2 Edge Cementing machine. The machine known as No. 4 Edge Cementing machine has been considerably changed in design but its use is identical with that of the No. 2 machine and our further remarks refer equally to it and to No. 2.

The object is to apply the cement to the edges of all classes of folded work in a rapid and effective manner. The capacity of

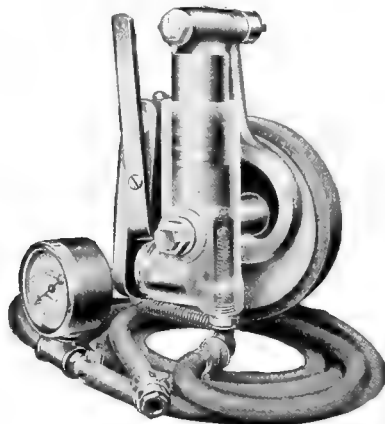


EDGE CEMENTING MACHINE.

the machine is limited only to the ability of the operator, who does not need to be an expert. Compared with ordinary table work one girl with the machine can do three or four times the quantity, and with a contingent saving of about 50 per cent. of cement. This is largely effected by the supply being under the absolute control of the operator at all times, thus making it possible to apply exactly the amount required. A further saving as far as cement is concerned is due to the machine being virtually air tight, and when not working, the small strippers for the feed roll move forward and prevent evaporation by closing over it.

A POWER PUMP FOR TIRES.

The temptation to shirk the tedious and tiresome work of pumping up a tire by hand, and to travel on a "few pounds less," which is one of the prime causes of tire trouble and injury to tires, is born of the inefficient devices used for inflation.



A POWER TIRE PUMP.

The automobilist may avoid the labor, without incurring the risk, by equipping his car with one of the many power tire pumps on the market, of which the Ten Eyck Pump, illustrated, is a type. Installed on the car, this machine is part of the power plant and always ready for service. The act of connecting the pump-hose with the tire, if there is any pressure at all in the latter, brings the piston wheel of the pump into contact with the flywheel of the engine and the pump begins to work automatically. As soon as the desired pressure is obtained, which can be read on the gauge, forming part of the

device, the hose is detached from the tire valve, which automatically throws the pump out of contact. If the tire is entirely deflated, it is only necessary to touch the starting lever to throw the pump into contact, and the pressure keeps it there. All the pump requires is occasional lubrication and properly inflated tires are assured without labor. [Auburn Auto Pump Co., Forty-third street and Broadway, New York.]

GASKETS OF METAL AND RUBBER.

The McKim gasket is not particularly new. As a matter of fact it has been in use in one form or another for over 15 years; but it is interesting enough, by reason of its present vogue, to entitle it

to a paragraph. The accompanying illustration gives a general idea of its construction. It is named after the inventor, Mr. McKim, who was a railroad engineer living in Denver some 17 or 18 years ago.



He conceived the idea that by putting a thin shell of copper around his rubber gaskets, he could keep his joints just as tight, and have the packing serve very much longer. That was the

beginning of the McKim gasket. Its general construction remains the same today, namely, a thin metal cover around some elastic packing. The elastic packing serves to make the joint tight, and the metal cover serves to hold the packing together, and make it more durable. Where the gasket is required for low pressures and for cold water, the packing consists of rubber, but where extreme heat or high pressure is used, asbestos replaces the rubber. This packing is now used extensively by railroads and in power plants of all descriptions. [McCord Manufacturing Co., Detroit, Michigan.]

THE V. P. SHAFT SPEED COUNTER.

That "V. P." doesn't stand for vice-president, but rather for vest pocket, because this little counter can be carried around very conveniently in the vest pocket. It is only 3 inches long, but it is



said to be thoroughly accurate. It is intended for use in determining the speed of shafts of engines, pulleys, etc. The tip, which

is made of rubber to insure better contact, is applied to the center of arbor or shaft. It registers the exact number of revolutions and requires only the taking of the initial reading and the subtraction of that reading from the final reading to obtain the number of revolutions in any given time. [American Steam Gauge and Valve Manufacturing Co., Boston, Massachusetts.]

ACID-PROOF SHEETING.

So called acid-proof sheeting made of poor quality, like all other goods of poor quality, is quite unsatisfactory. The Dunlop No. 76 Red Acid-Proof Sheeting is subjected to a variety of tests that would seem to constitute conclusive proof of its acid-resisting qualities. Here are some of the tests: 10 per cent. carbolic solution 30 minutes; strong cold ammonia for the same length of time; 50 per cent. alcohol also for 30 minutes; and boiling soap and water for 10 minutes. Any rubber sheeting that can survive these tests successfully, ought certainly to be practical for ordinary use.

New Rubber Goods in the Market.

RUBBER DAYLIGHT BAGS IN PHOTOGRAPHY.

AN excellent contrivance for the photographer when desirous of changing plates to a developing tank or loading plates in a holder in the daytime, is a rubber bag made for the purpose. The bags come in sizes to fit cameras from 4 x 5 to 8 x 10.



INGENTO DAYLIGHT BAG.

made of the finest quality of black sateen, lined throughout with black rubber. [Burke & James, Inc., Chicago, Illinois.]

The plates, or whatever needs changing, are put into the bag, the opening being closed with glove fasteners. The heads are then inserted through side pockets or sleeves of the bag, which are safeguarded by elastic bands and the desired change of plates is made. These bags are

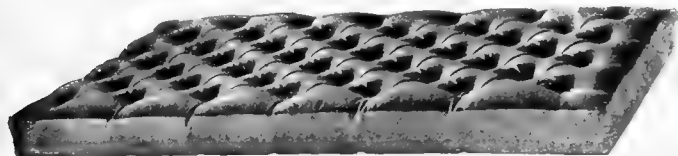
PNEUMATIC CRIB MATTRESS.

The illustrations show one of the new pneumatic crib mattresses, both inflated and deflated. When inflated it is soft, comfortable, never becomes matted, nor does it need turning. It can easily be



CRIB MATTRESS
(DEFLATED).

cleaned with a sponge, does not wet through; and when it is wet, dries almost immediately. It is absolutely hygienic, as no germs can possibly get a place to hide in it. The mattress can be adjusted as to softness at any time very easily. When deflated and wrapped up it weighs only seven pounds. It can be had in two sizes, or made to or-



PNEUMATIC CRIB MATTRESS (INFLATED).

der in any special size. [Pneumatic Manufacturing Co., Brooklyn, New York.]

A RUBBER WITH A LEATHER HEEL SEAT.

Rubbers have to stand a good deal of hard wear at the best; and when they get it both ways, outside and inside, full service can hardly be expected. And they are bound to get it both ways when the leather shoe which goes into the rubber has projecting nails in the heel. To guard



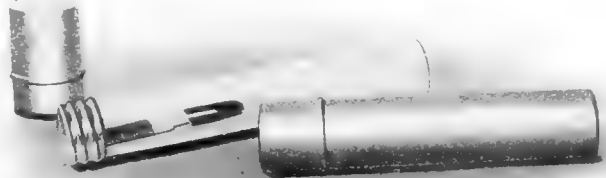
LEATHER
HEEL SEAT.

against this contingency the Converse Rubber Shoe Co. puts a leather seat in the heel of a number of its most popular shoes, sandals and "self-actings" for men, and croquets and storm rubbers for women. Where this piece of leather is put in the heel of the rubber, it is a matter of no particular consequence whether the leather heel has any exposed nail heads or not. The illustration shows the position of this leather seat. [Converse Rubber Shoe Co., Malden, Massachusetts.]

A DEVICE FOR DETECTING ELECTRICAL CURRENTS.

Accidental electrocution is by no means a rare occurrence. Scores of workmen have had their lives snuffed out because they started to work upon wires or apparatus from which they supposed the electrical current had been shut off when it had not. The former methods of determining whether the wire or apparatus was "live" or "dead" were most uncertain, as they depended upon the perfect working of switch boards and upon the unfailing care of workmen, who are sometimes unreliable through carelessness and sometimes through inexperience.

A little apparatus has been devised—extremely simple in character, but accurate—by which the presence of any voltage above 500, either direct or alternating, can always be detected. This



ELECTROSCOPE.

device consists of a delicate silver leaf mounted upon a copper terminal, which is hermetically sealed within a glass tube. The metal cap of this tube forms the test terminal which is advanced toward the conductor or apparatus. The glass of the tube affords protection for the operator. The silver leaf will stand perpendicular to the terminal when in an electrical field, and will lie in its normal position if there is no potential present. This electroscope is made in two sizes—one as shown in the cut for pocket use, which the workman can conveniently carry with him, and the other a considerably larger size with wooden handle, for use in power houses and electrical stations.

THE TYRIAN "HOLD-TITE" ANTI-SKID TIRE.

A glance at the accompanying illustration of the Tyrian tire shows how the anti-skid qualities are obtained. There are two evenly moulded channels running around the whole tire, which

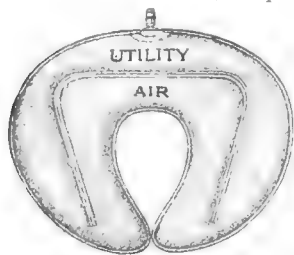


permit the shoulder in the center to take hold of the roadway. In addition to that there is a large number of cross channels, about an inch apart, which make it easy in starting for the tire to grip the road. Every autoist wants to avoid chains wherever it is possible. Under the best conditions they are an annoyance. The manufacturers of this tire claim that it takes hold of the road even under conditions of snow and ice just as well as a chain can do. These tires are made of the best Sea Island cotton and Upriver Fine Pará and have behind them the company's 56 years of experience in the manufacture of high grade rubber goods. [Tyer Rubber Co., Andover, Massachusetts.]

The accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

FOR A DOZEN DIFFERENT PURPOSES.

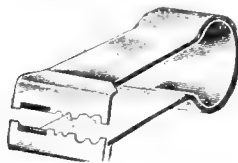
Multum in parvo is the motto of the true camper. He wants every article of his outfit to serve as many purposes as possible—the more the better. Now here is an article called the Sportsman's "Utility" Cushion that will appeal to every sportsman. It is a rubber cushion, shaped like the accompanying illustration, made to fit around the neck. When it is deflated it can be carried in the pocket. When it is full of air it surrounds the neck and covers both shoulders with a thick pneumatic cushion, on which guns, paddles or canoes can be carried for an indefinite length of time without leaving a sore spot next day. Moreover, when you get back to camp it serves as a cushion by day and a pillow by night. The fisherman or the duck hunter will find it vastly preferable to sitting on damp logs or wet ground. Then again it makes a perfect swimming collar, and in case of need an effective life preserver. It is covered with brown duck to increase its service. [Iver Johnson Sporting Goods Co., Boston, Massachusetts.]



THE SPORTSMAN'S "UTILITY" CUSHION.

TO STRIP INSULATION FROM WIRE.

The ordinary way of removing insulation from wire is to take a jack-knife and do it laboriously and with considerable danger to the fingers—not to mention more or less damage to the wire. A little tool has been invented that will obviate all this, making it possible to remove insulation from single or duplex wires, easily and rapidly. It is a small tool—only 3½ inches long and 1½ inches wide, so that it easily can be carried in the pocket. It is shown in the accompanying cut. It consists of a steel spring handle, with cutting edges, constructed especially for this work. On referring to the illustration it will be



THE WIRE STRIPPER.

noticed that there are three twin sets of cutters. The double cutters at the right are for the purpose of separating duplex wire; the smaller double set in the center is for use in splitting insulation on a single wire; the parallel scraping jaws at the left are for the purpose of removing the insulation and scraping the wire clean and ready for soldering. [Mathias Klein & Sons, Chicago, Illinois.]



INSULATION PARTLY REMOVED FROM WIRE BY STRIPPER.

A RUBBER SLEEP PRODUCER.

A recent issue of one of the New York dailies, in its Sunday magazine section, contained an illustrated article on a new sleep-producing machine, consisting of a small tank of water, some distance above the sleeper's—or rather, the non-sleeper's—head, from which runs a rubber tube, carrying water through a small rubber bag or pad fastened over the patient's forehead; the theory being that the rhythmic sensation of the water flowing slowly through the thin rubber bag on the forehead produces a soothing effect and soon invites sleep. The name of the inventor of this apparatus, or of the factory where it is made, is not disclosed, and inquiry fails to bring the desired information; but as the apparatus is quite simple, requiring not much more than an ordinary wooden pail and a small rubber tube, any insomniac who is interested can construct his own equipment and try the experiment.

RUBBER TIPS FOR SHOE SOLES.

In the United States, rubber heels have become quite popular; there are also quite a good many rubber soles worn, but we have not yet begun to use fractional parts of heels or soles. In the Old World they carry economy rather farther than we do here, and make use of small rubber tips to cover places in the shoe that are badly worn. The accompanying cut shows two rubber tips which are intended to be cut apart and used on the sides of the soles. [Millwall Rubber Co., of White City, Harpenden, England.]



A PAIR OF SOLE TIPS.

"LONGALYFE" FOR RUBBER.

The most interesting toy for the boy of these days is the model aeroplane which, with a motive power of rubber bands, can be made to sail through the air for a thousand feet or more. But the life of a rubber band under tension is not so very long. An English firm has recently brought out, under the name of "Longalyfe," a preparation which it claims lengthens the life of rubber by preserving its natural elasticity. It is especially recommended for use on model aeroplane rubber, "as it permits a greater number of turns to be made, and at the same time giving more power in the winding, owing to the elasticity of the rubber being increased." This preparation has been subjected to many tests and experiments, and its use, it has been proved, will materially lengthen the life of rubber goods. [Allen, Knight & Co., London, E. C., England.]

TIRES AND CHAINS ALL ONE.

The chain has come into considerable vogue among motorists, because it helps the tire to grip the roadway, particularly when because of ice and snow the roadway is likely to be slippery; but the metal chain has two distinct disadvantages: it is very hard on the road—a feature which, of course, does not keenly interest the motorist—and it is very hard on the tire—a feature that does keenly interest him. The United States Tire Co. has just brought out a new development of chain construction that obviates both of its disadvantages, because it makes the chain a constituent part of the tire. Instead of being metal it is rubber. In other words, there is a raised pattern of a double chain running around the ridge of the shoe, as shown in the illustration. This rubber chain grips the road, and, of course, obviates to a considerable extent the tendency to skid. At the same time it not only does not injure the tire but considerably increases its wearing capacity.



News of the American Rubber Trade.

THE RUBBER CLUB HAS SUPPER AND A TALK.

THE annual meeting of the Rubber Club of America, which was announced for April 15, for the election of officers and for the disposition of various other matters, was adjourned from that date, without the transaction of any business, to some future date when it would be possible for Mr. Henry C. Pearson, editor of THE INDIA RUBBER WORLD, to be present and give the members of the club a talk about his recent South American travels. The adjourned meeting was held at 6 o'clock on Monday evening, April 29, at the American House, Boston.

After the election of officers and the transaction of other business brought before the meeting, the members sat down at 7 o'clock to give active consideration to a supper, which constituted an agreeable addition to the usual routine of the annual meeting. While this was termed a "supper," it proved to be a very substantial and satisfactory repast.

At its termination Mr. Pearson gave an hour's pictorial talk on his recent trip through the West Indies, along the coast section of Venezuela and up the Orinoco. This was illustrated by a very generous number of handsome lantern views, a large part of them made from photographs taken by the lecturer himself. These slides covered scenes in Trinidad, in the various coast towns of Venezuela, and included some particularly attractive scenes in and around Ciudad Bolivar and Caracas, the capital city. A good many rubber trees were shown, and while the evening was one of unusual entertainment to the large number present, its chief interest to many of the members lay in the substantial addition to their fund of rubber information which it enabled them to acquire.

The ballot for officers resulted in the re-election of all the officers of the past year, with the exception of Mr. George B. Hodgman, who was elected vice-president. The officers for 1912 are as follows:

President, Frederic C. Hood; vice-president, George B. Hodgman; treasurer, J. Frank Dunbar; secretary, Frank D. Balderston; assistant secretary, Harold P. Fuller.

Honorary vice-presidents: L. DeWart Apsley, Augustus O. Bourn, John H. Flint, George H. Hood, Alexander M. Paul, Henry C. Pearson, Arthur W. Stedman.

Directors: Homer E. Sawyer, Elisha S. Williams, H. E. Raymond, Elston E. Wadbrook, Frederic H. Jones, H. S. Firestone, George E. Hall, A. L. Comstock, F. H. Appleton.

MEETING OF RUBBER SECTION OF AMERICAN CHEMICAL SOCIETY.

A "get together" meeting of the Rubber Section of the American Chemical Society was held at the Chemists' Club on Tuesday evening, April 16. The meeting was preceded by a dinner, there being thirty-six members present out of a total membership of 85. The dinner was a very successful one, as was also the meeting which followed. The meeting was addressed by A. D. Little, president of the American Chemical Society, and also by Dr. Charles F. Chandler, the "father" of the American Chemical Society.

The secretary announced the appointment of three committees by the Executive Committee, namely, the Analysis Committee, Specifications Committee and a Consultation Committee. The constitution of these committees provoked quite an animated discussion.

There seemed to be some divergence of opinion in regard to the proper complexion of these committees, some maintaining that they should consist largely, if not wholly, of representatives of manufacturers, while others thought that the representatives of the consumer should constitute the controlling element on the committees, their contention being that if the committees were

not so constituted their reports when made would not be likely to receive sufficient consideration from the consumers. Then again, there were those who thought that the manufacturers should be chiefly represented on the committees, but took the ground that the representatives should be apportioned among the different manufacturing lines. Dr. Little pointed out the fact that the members were present, not as representatives of particular manufacturers, instructed to look out only for their interests, or for the interests of their particular branch of the trade, but that they were present as members of the American Chemical Society, and should have at heart only the interests of the society rather than of the special branch of the rubber industry with which they were connected; but to a good many members this idea, while most laudable, seemed rather too Utopian to be practical at the present time. After considerable discussion it was decided to let the committees stand as at present composed and take the matter up again at some later meeting.

UNITED STATES RUBBER CO.'S PROFIT-SHARING PLAN.

On April 22 the United States Rubber Co. made the following announcement regarding the profit-sharing plan, which it has been considering for some time, for the benefit of its employees:

"For some time past the directors of the United States Rubber Co. have been elaborating a plan for the further development of the interest, loyalty and efficiency of its many salaried men in its service and in that of its subsidiary companies. They have concluded to accomplish this by giving them a special motive for acquiring and retaining an interest in the company's stock, so as to make them substantially partners in the enterprise. For this purpose the company acquired in the market a large number of shares of its common stock at \$45 per share, which it is now offering to them at the same figure, although the market price at present is somewhat higher. It is arranging to have the subscriptions paid for in instalments of not less than \$4 per share per month. It is limiting the offer to those receiving \$1,300 per annum and upwards, on the idea that they will best be able to meet the required payments, without taking an undue financial burden upon themselves. In order to make the privilege of subscribing at \$45 per share still more attractive, and also to make it the more probable that the subscribers will retain their stock and so retain their interest in the company's welfare, the company proposes to give them a cash payment of \$3 per share for each of the coming five years, provided the subscribers retain their stock during that period and obtain a certificate at the end of each year that their services have been satisfactory to the company.

"In order to make the payments on the subscriptions less burdensome to the subscribers, the company will distribute a certain profit-sharing fund among the subscribers. Any subscriber may until it is fully paid cancel his subscription at any time, and in that case will be refunded all he has paid, together with interest at 5 per centum per annum. In the case of the death of a subscriber during the five years, his family will receive the same benefit he would have received under these plans had he lived. Any forfeitures caused by unsatisfactory services or by termination of service or by cancellation will inure to the benefit of the other subscribers.

"If the plan works out successfully, it is intended to make a similar offer in each succeeding year, the price of such future stock subscriptions, however, to be determined partly by the then prevailing market price of the stock and other conditions prevailing at the time, and it is believed that enthusiastic and highly interested work and prolongation of service will make substantially for the welfare of all concerned."

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for five weeks, ending April 27:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend, April 30, 1912—1%.

Week	March 30...	Sales 29,700 shares	High 56	Low 52½
Week	April 6...	Sales 17,400 shares	High 56¾	Low 54½
Week	April 13...	Sales 23,150 shares	High 57½	Low 56
Week	April 20...	Sales 9,605 shares	High 56¾	Low 54½
Week	April 27...	Sales 25,300 shares	High 61½	Low 55¼

For the year—High, 61½, April 26; Low, 45¼, February 1.
Last year—High, 48½; Low 30½.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, April 30, 1912 2%.

Week	March 30...	Sales 1,500 shares	High 114¼	Low 113⅞
Week	April 6...	Sales 1,245 shares	High 114½	Low 114¼
Week	April 13...	Sales 1,905 shares	High 115½	Low 114¾
Week	April 20...	Sales 300 shares	High 113½	Low 112⅜
Week	April 27...	Sales 1,450 shares	High 114¼	Low 112½

For the year—High, 115, April 11; Low, 109, January 30.
Last year—High, 115½; Low, 104.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, April 30, 1912—1½%.

Week	March 30...	Sales 2,300 shares	High 79½	Low 78
Week	April 6...	Sales 700 shares	High 79¾	Low 79⅞
Week	April 13...	Sales 1,915 shares	High 80½	Low 79½
Week	April 20...	Sales 500 shares	High 79	Low 78½
Week	April 27...	Sales 2,000 shares	High 80¾	Low 79

For the year—High, 80¾, April 25; Low, 75, January 23.
Last year—High, 79; Low, 66.

SIX PER CENT. TRUST GOLD BONDS, \$19,000,000

Outstanding of the 1908 issue of \$20,000,000.

Week	March 30...	Sales 37 bonds	High 104⅝	Low 104¼
Week	April 6...	Sales 19 bonds	High 104½	Low 104⅜
Week	April 13...	Sales 31 bonds	High 104⅝	Low 104¼
Week	April 20...	Sales 66 bonds	High 104½	Low 104⅝
Week	April 27...	Sales 55 bonds	High 104¾	Low 104⅝

For the year—High, 105, February 24; Low, 103¾, January 6.
Last year—High, 105; Low, 101¾.

AN AERONAUTICAL EXHIBITION.

THE first annual international aeronautical exhibition in America will be held in the Grand Central Palace in New York from May 9 to 18 next, under the auspices and control of the Aero Club of America.

Notwithstanding the many aeroplane shows which have been held during the past year—generally in connection with exhibits in other lines—no comprehensive exhibition of aeronautics has hitherto been undertaken in this country. The committee in charge intends to conduct the show along the lines of the exhibitions which have been held with such success in Paris.

The exhibition will embrace the most modern aeroplanes, spherical balloons and dirigibles of both European and American manufacture, and will include specific craft which have won special honors.

The exhibits will also cover completed apparatus for aerial locomotion, including balloons, dirigibles and aeroplanes, while interspersed with the aerial craft will be booths for the exhibit of accessories for all methods of air travel. Space on the main floor has also been allotted for the display of trophies, and the historical exhibits will have a place on the mezzanine. The balcony will be given over to accessories and to pictures and photographs. Besides the display of aeroplanes and accessories there will be a display of models, designs and patents. A section of the exhibition hall will be set apart for the display of plans, specifications and drawings. Inventors will find this a fine opportunity to introduce their working designs to those interested in aviation, as well as to the general public.

The display of aeronautic accessories will include fabrics for aeroplanes and dirigibles. This department will, of course, be of special interest to rubber manufacturers.

TRADE NEWS NOTES.

MEYER COHN, 2 Hudson street, New York, whose head offices are in Hanover, Germany, importer of rubber factory supplies, has lately been importing large quantities of talc and soapstone, the talc being extremely white in color and the best quality obtainable in Europe. He is prepared to deliver soapstone in pieces. Another specialty is infusorial earth, of which he carries about 20 different grades.

On April 4 the directors of the United States Rubber Co. declared from net profits a quarterly dividend of 2 per cent. on the first preferred stock, a quarterly dividend of 1½ per cent. on the second preferred stock, and a quarterly dividend of 1 per cent. on the common stock of the company, to stockholders of record on April 15, 1912; and these dividends were paid April 30.

For the first time in the statistics of the American trade imports and exports of aeroplanes have appeared during the last year. Figures for the eight months ending with February last show the number of aeroplanes imported as 13, valued at \$48,633, the number exported as 26, valued at \$99,796, of which 19, with a value of \$71,195, were of domestic manufacture.

A fire did about \$10,000 damage to the plant of the Buffalo Foundry and Machine Co., Buffalo, New York, early in the morning of April 11. Because of its steel and glass construction the building is practically fireproof excepting the roof, where the greatest damage was done. The building is 145 x 320 feet and contains 175,000 square feet of ribbed glass. The blaze started in the corerom and quickly spread to the roof which was in flames when the first firemen arrived. The work was hazardous because of the breaking glass, and it was a most stubborn fire to fight. No one was hurt, and the plant was running as usual the following Monday.

The exportation of American tires during the month of February, 1912, amounted to a value of \$267,036, as compared with \$179,047 in the same month of 1911, a gain of more than 45 per cent. During the eight months ending with February, \$1,641,373 worth of tires were shipped abroad, as against \$1,194,720 worth in the same period of the preceding year, an increase of almost 37 per cent.

On May 1 the New York offices of the Underwriters' Laboratories were consolidated at No. 135 William street, in charge of Mr. Dana Pierce, electrical engineer and agent at New York. Mr. Pierce has been in charge of the electrical department of the laboratories at the principal office in Chicago during the past six years. A station for testing electrical appliances will be operated in connection with the New York offices, and be used chiefly in the service of inspections at factories and labeling. Applications for tests of electrical fittings may be made either at the principal offices and testing station at Chicago, or at the offices in New York.

It is reported that included in the vast volume of merchandise lost with the sinking of the *Titanic*, the boat had on board 125 tons of rubber intended for various consignees on this side. Practically all of this rubber was covered by insurance.

The fire that occurred on Saturday, April 13, in the warehouse of S. Birkenstein & Sons, scrap rubber dealers of 377 West Ontario street, Chicago, Illinois, was not serious enough to interfere in any way with the company's prompt delivery of customers' orders.

SALE OF CONTINENTAL TIRES.

THE Hub Cycle Co., of Boston, recently purchased the entire stock of Continental tires from the Boston branch of the United States Tire Co., and is offering them at an attractive reduction in price. The tires will be adjusted on the regular 3,500 mile basis for any of the well-known makes of the United States Tire Co.

"RUBBER Tires and All About Them"—a book for everybody who has to do with tires.

TRADE NEWS NOTES.

The annual report for 1911 of the Canadian General Electric Co., Limited, shows that the company enjoyed a very prosperous year, the profits, which were the largest in the history of the company, amounting to \$1,405,889.70. Additions were made to plant and equipment, so as to give the factory a larger capacity, without materially increasing the overhead expense account. In addition to paying 7 per cent. on the preferred and common stock, amounting to \$525,109.37, over \$350,000 was written off for depreciation, leaving a balance of over \$364,000 which sum, added to the balance at the end of the previous year, together with the reserve fund, gives the company a total surplus of \$2,345,311.30. The volume of business during 1911 exceeded that of any preceding year.

The American Telephone and Telegraph Co., has issued its annual report for 1911. At the end of last year the number of stations connected with this system in the United States was over 6,600,000, an increase of three-quarters of a million over the preceding year. The Bell Telephone toll lines now reach 70,000 places in the United States, as compared with 65,000 post-offices and 60,000 railroad stations.

During the year, over \$58,000,000 was applied out of revenue to maintenance and reconstruction purposes. The total provision for maintenance and reconstruction charged against revenue for the last nine years is over \$342,000,000. The total mileage in use for exchange and toll service shown in this report is nearly 13,000,000 miles, one-tenth of that mileage being added last year.

The annual report for 1911 of the Western Electric Co., Chicago, Illinois, shows a prosperous condition. Sales of the company for the year were \$66,211,975—an increase of nearly 5 per cent. over the preceding year. The increased cost of labor and material during the year was to some extent overcome by various economies and improvements. Additional buildings aggregating over 250,000 square feet of floor space were completed during the year. On January 1, 1912, the total number of employees in the service of the company was 23,423.

The Turner, Vaughn & Taylor Company, which for a great many years has been building specialties for the rubber trade, prominent among which are the various tub washers and reclaimed water separators, is now in position to furnish the trade with a full line of grinding and mixing mills, cracker rolls, hydraulic accumulators, presses, hose machinery and the usual line of power transmission. The company is not in shape as yet to handle calenders, but hopes to be within a short time.

THE PLYMOUTH RUBBER CO. MOVES TO CANTON.

The Plymouth Rubber Co., whose factory has been located at Stoughton, Massachusetts, has sold its plant in that town and is moving its machinery and its business into a large new plant recently erected at Canton, Massachusetts, where the company has acquired a tract of 72 acres of land, and where it has excellent water power, a private spur-track and many other manufacturing conveniences. It is still running its Stoughton plant, but the greater part of its work is now being done in Canton, and its offices have been installed in that place in temporary quarters, pending the construction of a new administrative building.

TYER RUBBER CO.'S OFFER TO EMPLOYEES.

In connection with its large increase in facilities and the erection of additional buildings, the Tyer Rubber Co., Andover, Massachusetts, has decided to increase its capital stock by an issue of an additional \$200,000 6 per cent. cumulative preferred stock. It decided to give its own employees the first opportunity to subscribe for this new stock at the par value of \$100 per share. The entire issue was largely over-subscribed by the employees, showing on their part a keen appreciation of the company's offer. It is expected that this stock will be issued some time in June.

RUBBER MOUTHPIECES PAY 35 PER CENT. DUTY.

The protest made by the Hanover Vulcanite Co., 48-50 West Fourth street, New York, against a recent decision of the customs department has been sustained by the Board of United States General Appraisers. The decision referred to an importation of finished mouthpieces made of hard rubber. The Collector's office assessed these as smokers' articles, under paragraph 475, which calls for a 60 per cent. *ad valorem* duty and includes pipes and other smokers' articles. The Board of Appraisers decided that these hard rubber mouthpieces should be assessed under paragraphs 463 and 464, covering "manufacturers of gutta-percha, vulcanized india rubber, known as hard rubber," etc., and carrying a duty of 35 per cent. *ad valorem*. The general appraiser's opinion was as follows: "It is not clear that the merchandise here under consideration is any more a smokers' article than would be the crude rubber from which it is manufactured. It is simply an article from which a smokers' article can be and eventually will be made. The protest is, therefore, sustained and the Collector directed to reliquidate the entry, assessing the duty under paragraph 464."

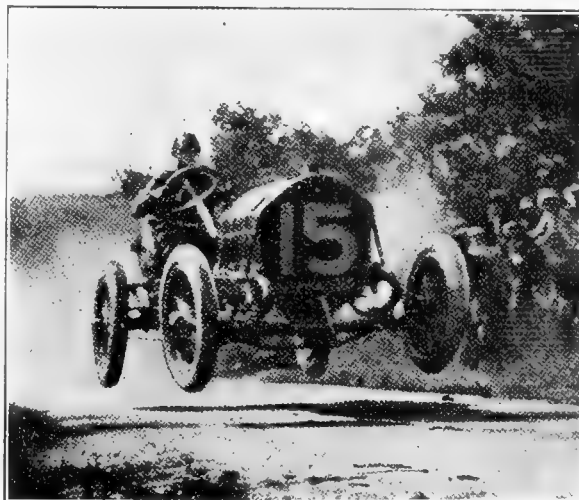
A PROPHECY OF CANADIAN FOOTWEAR PRICES.

A recent number of a commercial paper published in Winnipeg quotes the general sales manager of the Canadian Consolidated Rubber Co., Ltd., as saying: "Crude rubber continues to advance in price. The quotation yesterday was \$1.23. 1912 costs have been figured on lower prices, and if the market stands or advances, higher selling prices are inevitable."

Possibly this official may be correct as far as Canadian prices are concerned, but, it seems hardly likely that prices of rubber footwear in the United States will be advanced unless rubber goes to a materially higher figure than now appears probable. Footwear manufacturers in this country but recently reduced their prices, and are not likely to advance them again without substantial reason.

TIRES THAT STOOD A 42-FOOT JUMP.

An incident occurred in a recent hill-climbing contest in Maine that gave the advertising agent of some tire manufacturer the chance of his lifetime. The car was going at great speed when it struck a gully and took a flying leap in the air, not land-



Courtesy of Motor.

THE CAR THAT MADE THE WONDERFUL JUMP.

ing on the road again for a distance of 42 feet. Any tires that can stand a 42-foot jump and still go cheerfully about their work are fairly good tires. That is a test that very few manufacturers or dealers would care to subject their product to.

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

PERSONAL MENTION.

Miss Carolyn Stokes, daughter of William J. B. Stokes, president of the Home Rubber Co., Trenton, New Jersey, was married on the 24th of April, to Harold Franklin Blanchard. The ceremony took place at the State Street Methodist Episcopal Church of that city. Mr. and Mrs. Blanchard will make their home at Maplewood, New Jersey.

André Crémazy, president of the Chamber of Agriculture, Cochín China and representative of that colony at the London International Rubber Exhibition 1911, and also a member of the European advisory committee to the New York exhibition 1912, has written an interesting pamphlet on Pará Rubber and Cocoa-nut in Cochín China, which he dedicates as follows: "To Mr. A. Staines Manders in remembrance of his kindness to the French delegates, at the last London International Rubber Exhibition and in high appreciation of his services rendered to the rubber question."

Charles W. Harris, lately with the Chicago office of the Swinehart Tire & Rubber Co., has become connected with the Kelly-Springfield Tire Co. and will have charge of a branch store for the company in Seattle, Washington. Mr. Harris was connected with the Kelly-Springfield company ten years ago, when it was manufacturing solid rubber tires.

Frank A. Seiberling, president of the Goodyear Tire and Rubber Co., had engaged passage for himself, wife and daughter for the return trip on the *Titanic*. Undismayed by the disaster, they sailed April 19 for Europe on the *George Washington*.

William H. Palmer, of the advertising department of the United States Rubber Co., was called to Tewksbury, Massachusetts, by the fatal illness of his father, who died on April 22, in his eighty-second year. The funeral was held at that place on April 24.

Charles I. O'Neil, who has been connected with the New York office of the United States Rubber Co. for ten years (for five years holding an important position in the selling department), resigned from his position early in April. As an indication of his popularity among his associates, he was presented when he left with a very handsome scarf pin and tie clasp by the other members of the office staff. Mr. O'Neil did not announce his future plans, but inasmuch as he devoted his spare time for some years to the study of the law, it is highly probable that he intends to follow in the footsteps of Choate and Root and the other leading luminaries of the legal profession.

F. H. Peaty, of the Raw Products Co., importers of crude rubber, balata and gutta-percha, New York, is enjoying a two months' vacation trip, visiting the interesting scenes on the continent.

COMMODORE E. C. BENEDICT RETURNS.

Commodore E. C. Benedict, one of the directors of the United States Rubber Co., arrived home on April 17, after his four months' South American trip. He sailed from New York on December 19, on the steam yacht *Alvina*, and visited various West India islands and South American ports, going up the Amazon to his rubber plantation, and then retracing his course down the river, coasting southward as far as Buenos Ayres, where he left his yacht and boarded the *Bluecher* for a trip through the straits of Magellan and up to Valparaiso on the Pacific. Thence he crossed the Andes and returned by train to his yacht. He was accompanied on the voyage by Colgate Hoyt, Edward Beers, Legrand Benedict, his daughter, Mrs. Clifford B. Harmon; Miss Mary Hoyt and Miss May Bird, with Dr. Arnold, of New York, as ship's surgeon.

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

MR. MEASURE GOES TO FEDERAL.

The appointment of Charles Measure as manager of the carriage and motor truck tire department of the Federal Rubber Manufacturing Co., of Milwaukee, will be of interest to the vehicle rubber trade. Mr. Measure was connected with Morgan & Wright for eleven years, first as salesman in New England, and then as manager of their auto tire department from 1903 to 1906, leaving that position to accept the management of the Goodyear branch in New York City. After serving for five years in this latter capacity, he was transferred to Akron as manager of the solid tire department of that company, resigning on March first to join the Federal company in the capacity noted. It is expected that under the aggressive management of Mr. Measure, Federal carriage and motor truck tires will rapidly take rank among the most satisfactory and popular brands on the market.

SOME GOOD ADVERTISING BY THE H. F. TAINTOR MFG. CO.

The value of advertising cannot always be judged by its cost. The H. F. Taintor Manufacturing Co., for instance, has recently been distributing some advertising that is not particularly expensive, but is nevertheless very effective, as it possesses a permanent interest. This advertising is in the shape of two blotters, one a small-sized 6-inch blotter, which, on the coated side, has an exceedingly good half-tone reproduction of a photograph of lower New York as seen from the North River. This picture shows a number of the extraordinary buildings that have gone up within the last few years in that part of the city, the Singer and City Investing buildings being in the center, with the Hudson Terminal and the Park Row showing to the north, and the West Street. American Surety and others to the South. The larger blotter, 9-inch size, shows on its coated side a very good map, printed in five or six colors, of New York City and its environs. While both of these blotters will undoubtedly be used for blotting purposes, they are more likely to be preserved for their useful pictorial information. The larger blotter has a small cut of the Taintor Company's large works at Bayonne, New Jersey, where the French chalk and English cliff-stone, from which the Taintor whiting is manufactured, can be brought right to the factory's dock on the largest ocean steamers, and delivered with the least waste of time and expense.

THE KNICKERBOCKER SPRAYBRUSH BUSINESS CHANGES HANDS.

The Knickerbocker Manufacturing Co., 211-15 West Schiller street, Chicago, has taken over the entire Knickerbocker Spraybrush business, formerly owned by the Progress Company. The new company will concentrate its whole attention upon the manufacture and sale of appliances for the bath, shampoo and massage. The management states that the sale of the Knickerbocker Spraybrush, which has been extensively advertised, will be pushed more vigorously than ever before. This fact will be of interest to "Spraybrush" dealers throughout the United States, as indicating the co-operation which it will be the policy of the new company to extend.

J. H. LANE & CO. MOVE UPTOWN.

ON May 1, J. H. Lane & Co., whose offices for a long time have been located at 110 Worth street, New York city, took possession of their new quarters at Fourth avenue and Twenty-fifth street, where they have spacious and most attractive offices. They are the first of the large selling agents for cotton mills to move uptown, but undoubtedly there will soon be others, as the general trend of business in many lines is towards the uptown section in the neighborhood of the large hotels. The superior convenience and accessibility of this section to out-of-town buyers is obvious.

The Walpole Rubber Co., whose headquarters are at 185 Summer street, Boston, Massachusetts, has acquired the business of the Consumers' Rubber Co., Bristol, Rhode Island, manufacturers of rubber covered insulated wire and tennis shoes. Terrence McCarty will be retained to operate the plant.

NEW INCORPORATIONS.

Alpha Rim Co., March 23, 1912; under the laws of New York; authorized capital \$100,000. Incorporators: Clarence M. O'Donnell, 301 St. Nicholas avenue, New York; George H. Tice, 480 Sixteenth street, Brooklyn, New York, and Max P. Bau, 197 Norman avenue, Brooklyn, New York. Location of principal office, Brooklyn, New York. To manufacture auto rims, tires, auto supplies, etc.

Bomadeli Mercantile Co., March 19, 1912; under the laws of New Jersey; authorized capital \$125,000. Incorporators: George A. P. Boulden, 525 River street, Hoboken, New Jersey; George J. Saulpaugh, 843 Park place, Brooklyn, New York, and Arthur J. Westmermayr, 90 Nassau street, New York. The company has been incorporated to own, operate, sell and otherwise deal in rubber plantations in South Africa or other places.

The Borden Rubber Co., April 20, 1912; under the laws of New York; authorized capital \$10,000. Incorporators: Henry Perlish and Samuel Lund—both of 46 Cortland street—and Clarence E. Thronall, 50 Church street—all of New York. Location of principal office, New York.

Century Rubber Works, March 16, 1912; under the laws of Illinois; authorized capital \$30,000. Incorporators: Charles J. Monahan, J. A. Netzel and Frank M. Netzel. To manufacture and deal in rubber and gutta-percha and all goods in which same are component parts.

Chemical Rubber Co., March 15, 1912; under the laws of Wisconsin; authorized capital \$150,000. Incorporators: J. J. Lamkey, Frank P. Hatter and J. C. Evans. To manufacture, sell and deal in chemical rubber, etc.

East New York Raincoat Co., Inc., April 19, 1912; under the laws of New York; authorized capital \$10,000. Incorporators: Morris Hyams, 130 Thatford avenue; Michael Kohen, 1571 Eastern Parkway, and Rosa Hyams, 130 Thatford avenue—all of Brooklyn, New York. Location of principal office, Brooklyn, New York. To manufacture rubberized clothing, etc.

Eureka Non-Skid Manufacturing Co., March 28, 1912; under the laws of New York; authorized capital \$2,500. Incorporators: Henry E. Bradford, East Williston, Long Island; James Colbourne, London, England, and Brown Bolston, Plainfield, New Jersey. Location of principal office, Brooklyn, New York. To manufacture auto accessories, etc.

Footwear Manufacturing Co., April 1, 1912; under the laws of New York; authorized capital \$5,000. Incorporators: Chas. F. Denike, 188 Weirfield street, Brooklyn, New York; Henry S. Myers, 1010 Hoe avenue, Bronx, New York, and Morris Lefkowitz, 1076 DeKalb avenue, Brooklyn, New York. Location of principal offices, Brooklyn, New York. To manufacture and deal in shoes, rubbers, etc.

The Goodrich Raincoat Co., March 29, 1912; under the laws of Illinois; authorized capital \$2,500. Incorporators: John A. Bussian, Arthur Rosenthal and Ella Stier. The company has been incorporated for the purpose of buying, selling, manufacturing and vending of raincoats, etc.

Keystone Leathergoods Co., April 15, 1912; under the laws of New York; authorized capital, \$3,500. Incorporators: E. Brower, 288 Seventh street, Maurice Liften, 229 West 130th street—both of New York, and Henry Chaskin, 131 Debevoise street, Brooklyn, New York. Location of principal office, New York. To manufacture and deal in leather and rubber goods, etc.

Lancaster Engineering Corporation, August 1, 1911; under the laws of New York; authorized capital \$10,000. Incorporators: William A. Keddie, 3 Maiden Lane, New York; Edward J. Newell and Edward J. Hogerty—both of 42 Broadway, New York. Location of principal office, New York. To manufacture machinery, etc.

National Tire Co., April 8, 1912; under the laws of New York; authorized capital, \$50,000. Incorporators: Harry Davies, 246

West Forty-sixth street; Thomas H. Hopkirk, 30 Church street—both of New York—and Ivan V. Weisbrod, St. George, Staten Island. Location of principal office, New York.

The Ohio Tire Co., April 13, 1912; under the laws of New York; authorized capital, \$500. Incorporators: Samuel Kessel, 1405 Forty-second street, Brooklyn, New York; Fanny Karpowitz and Max Karpowitz—both of 166 South Second street, Brooklyn, New York. Location of principal office, New York. To manufacture tires and other auto accessories.

Rubber-Aer Co., April 15, 1912; under the laws of New York; authorized capital \$25,000. Incorporators: Daniel B. Crane, Jr., 4164 Brander street, Woodhaven, Long Island; Ernest Lavoie, 113 Seventh avenue, New York, and Hugh M. Smith, 222 Clark street, Westfield, New Jersey. Location of principal office, New York. To manufacture rubber goods, auto accessories, etc.

Sponge Rubber Inner Heel Co., April 10, 1912; under the laws of New York; authorized capital \$25,000. Incorporators: Alexander M. Patch, Lebanon, Pa.; Lowen E. Ginn and W. Beebe Price—both of 115 Broadway, New York. Location of principal office, New York.

Standard Shoe Co., March 29, 1912; under the laws of Maine; authorized capital \$35,000. Incorporators: G. J. Lamontagne, William E. Kinney—both of Claremont, New Hampshire—and Horace Mitchell, Kittery, Maine. The company has been incorporated to deal in—wholesale and retail—boots, shoes, etc., and to buy and sell real estate that may be useful in said business.

Surinam Rubber Estates, Inc., March 30, 1912; under the laws of Delaware; authorized capital \$1,000,000. Incorporators: Joseph F. Curtin, H. O. Coughlan—both of New York—and James M. Slatterfield, Dover, Delaware. The company has been incorporated for the purpose of acquiring lands and estates for the cultivation of rubber.

Tire Core Company of America, April 19, 1912; under the laws of New York; authorized capital \$100,000. Incorporators: Russell V. Stuart, 244 West Seventy-second street, Patrick J. O'Connell, 48 Leonard street, and Houston P. Reader, Lafayette and Walker streets—all of New York. Location of principal office, New York. To manufacture tire cores, tires, rubber goods, etc.

The Charles H. Tucker Co., March 29, 1912; under the laws of New York; authorized capital \$100,000. Incorporators: Chas. H. Tucker, Edward R. Wood and Henry W. Solomons—all of 1974 Broadway, New York.

Western Rain Coat Co., Inc., April 8, 1912; under the laws of New York; authorized capital \$3,000. Incorporators: Harris Lapin, 1705 Bathgate avenue; Rose Isaacson, 1477 Washington avenue, and Philip Braslausky, 3777 Third avenue—all of New York. Location of principal office, New York.

HAS MR. FLINT BOUGHT THE TOLSTOY ESTATE?

THE New York "Times" in a recent issue contained the following paragraph sent by its Vienna correspondent: "According to information from a trustworthy source, Charles R. Flint of New York has acquired the late Count Tolstoy's estate at Yasnaya Polyana, Russia. It is said that Mr. Flint intends to establish an agricultural school and museum on the estate."

The paragraph goes on further to state that Mr. Flint had interested with himself five of the leading manufacturers of agricultural implements in the United States, and with their assistance proposed to erect on the Tolstoy estate a permanent exhibition of American agricultural machinery, and to use this machinery in cultivating the surrounding land as an object lesson to the Russian farmers in modern methods of agriculture. It is believed that with their fertile land, with proper machinery, they could get twice the crops with much less labor and expense.

Inquiry at Mr. Flint's office regarding the accuracy of the above paragraph failed to elicit either confirmation or denial.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED MARCH 5, 1912.

- N**O. 1,019,622. Container and dropper. H. W. Cadwell, assignor to F. Stearns & Co.—both of Detroit, Mich.
- 1,019,192. Vehicle wheel. A. Schick, Wheeling, W. Va.
- 1,019,205. Erasing device for typewriters. H. M. Vaughan, Newton, Iowa.
- 1,019,286. Pneumatic tire. W. I. Twombly, New York.
- 1,019,301. Emergency attachment for vehicle wheels. E. T. Burrowes, Portland, Me.
- 1,019,340. J. C. McGowan and R. W. Michler, Ferris, Cal.
- 1,019,401. Horseshoe. L. Ahrens and E. M. Gilowsky, Milwaukee, Wis.
- 1,019,420. Fire nozzle. T. D. Brath, Rochester, N. Y.
- 1,019,451. Sectional insulator. J. C. Gillette, Baltimore, Md., assignor to General Electric Co., New York.
- 1,019,468. Tire protector. R. V. Hastings, Chicago, Ill.
- 1,019,506. Vulcanizing mould. W. A. McCool, Beaver Falls, Pa., assignor to Hercules Tire & Rubber Co., of Delaware.
- 1,019,536. Pneumatic wheel. A. C. Schroeder, Derry Station, Pa.
- 1,019,557. Tire alarm. E. A. Terpening, Mokena, Ill.
- 1,019,591. Pneumatic hub. C. E. De Boos, Temora, New South Wales, Australia.
- 1,019,607. Packing. A. C. Danver, Providence, R. I.
- 1,019,674. Tire inflation indicator. A. Joly de Lotbiniere, Srinagar, India.

Trade Marks.

- 52,026. Revere Rubber Co., Chelsea, Mass. The number 1100. For belting, hose and machinery packing, etc.
- 54,231. Boston Rubber Shoe Co., Boston, Mass. The word *Storm*. For rubber boots and shoes.
- 60,266. Parker, Stearns & Co., New York. The words *Spring Maid*. For rubber bathing caps.
- 60,267. Parker, Stearns & Co., New York. The words *Water Nymph*. For rubber bathing caps.
- 60,524. Jenkins Rubber Co., Elizabeth, N. J. The words *Jen R Co.* crossed in a diamond.

ISSUED MARCH 12, 1912.

- 1,019,775. Foot rest for bath tubs. F. Forsberg, Chicago, Ill.
- 1,019,832. Wheel. W. Phillips, Cape May, N. J.
- 1,019,835. Tool for removing insulation from wires. H. Prack, Ottawa, Ill.
- 1,019,845. Vehicle wheel. N. Schenk, St. Louis, Mo.
- 1,019,846. Resilient wheel. N. Schenk, St. Louis, Mo.
- 1,019,847. Resilient wheel. N. Schenk, St. Louis, Mo.
- 1,019,896. Vehicle wheel. Hayes W. Henry, Melvern, Kan.
- 1,019,898. Resilient heel. L. N. Jacobi, Chicago, Ill.
- 1,019,973. Automobile tire. J. F. Lieb, Philadelphia, Pa.
- 1,020,071. Umbrella for theatrical purposes. H. Askin, Chicago, Ill.
- 1,020,115. Packing ring. W. W. Price, Dayton, Ohio.
- 1,020,138. Adjustable heel for footwear. H. E. Fry, New York.
- 1,020,140. Removable rim for vehicle wheels. C. D. Galvin, Merchantville, N. J.
- 1,020,160. Shoe pad. L. S. Rowe, Santa Barbara, Cal.
- 1,020,260. Spring wheel. E. W. Burner, Luray, Va.
- 1,020,288. Tire tool. P. E. Kenney, Celina, Ohio.
- 1,020,367. Exerciser. R. B. Patterson, Jr., Chicago, Ill.

Trade Marks.

- 31,536. Peerless Rubber Mfg. Co., New York. The word *Colonial*. For belting composed of rubber.
- 55,764. A. G. Spalding & Bros., Jersey City, N. J. The word *Midget*. For golf balls.
- 60,346. Charles A. Daniel, Philadelphia, Pa. The words *Quaker City*. For rubber hose, belting, etc.
- 61,228. I. B. Kleinert Rubber Co., New York. The word *Farcoola* written across a fan. For dress shields.

ISSUED MARCH 19, 1912.

- 1,020,464. Automobile tire. W. S. Temple, Sidney, Ill.
- 1,020,478. Wheel rim. I. J. Carpenter, Marlboro, Mass.
- 1,020,489. Antiskid grip. L. B. Gaylor, Stamford, Conn.
- 1,020,496. Driving belt. M. Hawe, Pelham Manor, N. Y.
- 1,020,497. Composition of spongy matter. A. H. Henderson, Baltimore, Md.
- 1,020,499. Fabric or cloth. A. H. Henderson, Baltimore, Md.
- 1,020,549. Vehicle tire. R. Glabaznya, Chicago, Ill.
- 1,020,661. Packing. J. Restein, Philadelphia, Pa.
- 1,020,678. Wheel rim. F. R. Barker, Boston, Mass.
- 1,020,724. Therapeutic device for the treatment of the eyes or ears. A. W. Stephens, New York.
- 1,020,738. Locking washer. C. Bauer, London, England.
- 1,020,797. Vehicle wheel rim. H. Bussing, Brunswick, Germany.
- 1,020,800. Repair heel. G. D. Coates, Torrington, Conn.
- 1,020,808. Bottle and stopper. F. W. Dufwa, Mexico, Mexico.

- 1,020,880. Insulator. A. M. Bourke, Maitland, New South Wales, Australia.
- 1,020,901. Wheel. Pierre Haerst, Chicago, Ill.

Design.

- 42,327. Rubber mat. E. H. Huxley, assignor to the National India Rubber Co.—both of Bristol, R. I.

Trade Marks.

- 55,268. B. H. Gladding Dry Goods Co., Providence, R. I. The words *Gladdings Quality* in a circle. For rubber boots, etc.
- 59,265. Victor-Balata & Textile Belting Co., Easton, Pa. The word *Axeolat*. For car lighting belting composed of woven duck impregnated with pure balata gum.
- 60,261. T. Martin & Bro. Mfg. Co., Chelsea, Mass. A picture of a crown. For elastic webs.
- 61,270. The Simplex Electrical Co., Boston, Mass. The word *Simcore*. For insulated wire.

ISSUED MARCH 26, 1912.

- 1,020,977. Vehicle wheel. L. L. Gregg, Jr., Lonejack, Mo.
- 1,021,059. Insulator. W. R. Markley, Findlay, Ohio.
- 1,021,072. Vehicle tire. C. A. Schenkel, Wabash, Ind.
- 1,021,142. Pneumatic walking attachment. M. W. Freeman, Millington, Mass.
- 1,021,171. Tread for pneumatic tires. F. G. Ward, Pittsburgh, Pa.
- 1,021,176. Inflatable dress or skirt shield. F. P. Baker, Malden, Mass.
- 1,021,240. Pneumatic hub for vehicle wheels. T. Duysens, Maastricht, Netherlands.
- 1,021,246. Vehicle tire. W. A. Giermann, Biencoe, Iowa.
- 1,021,307. Vehicle wheel tire. L. G. Fleming, Tarrytown, N. Y.
- 1,021,355. Spring wheel. J. C. Deekard and I. L. Deekard, Vincennes, Ind.
- 1,021,422. Tire for vehicle wheels. T. J. Mell, assignor to The Republic Rubber Co.—both of Youngstown, Ohio.
- 1,021,424. Tire bolt wrench. C. E. Oatman, Brookline, Mo.
- 1,021,495. Vehicle wheel. E. A. Glenn, Chicago, Ill.
- 1,021,467. Wheel. C. E. Martin and S. J. Clonkey, Washington, Pa.
- 1,021,510. Attachment for shoe heels. J. A. Enright, Columbus, Ohio.
- 1,021,515. Resilient wheel. C. D. Galvin, Merchantville, N. J.
- 1,021,561. Vehicle tire. Benjamin Clifford Swinehart, Youngstown, Ohio.
- 1,021,591. Resilient tire. C. Friederich, Tripp, S. D.
- 1,021,616. Pneumatic tire. J. McGinnis, Johnstown, Pa.
- 1,021,618. Wheel. G. H. Metcalf, Wilkinson, Miss.
- 1,021,711. Vehicle wheel tire. B. C. Swinehart, Youngstown, Ohio.
- 1,021,724. Mud guard for the wheels of motor and other vehicles. C. H. Nichols, Wolverton, England.
- 1,021,727. Tire chain mechanism. C. Peterson, Portland, Ore.
- 1,021,751. Resilient heel. H. H. Mathis, Camden, S. C.

Trade Marks.

- 60,058. Hood Rubber Co., Boston, Mass. Description of button on boot.
- 60,325. The Star Rubber Co., Akron, Ohio. The word *Nepto*. For water bottles, syringes, etc.
- 60,327. The Star Rubber Co., Akron, Ohio. The word *Luna*. For water bottles, syringes, etc.
- 60,329. The Star Rubber Co., Akron, Ohio. The word *Veno*. For water bottles, syringes, etc.
- 60,331. The Star Rubber Co., Akron, Ohio. The word *Saturn*. For water bottles, syringes, etc.
- 60,332. The Star Rubber Co., Akron, Ohio. The word *Jupiter*. For water bottles, syringes, etc.
- 60,764. E. Z. Jefferson, Sewickley, Pa. The word *Jasec*. For rubber valves, packing, etc.
- 60,765. E. Z. Jefferson, Sewickley, Pa. The letters *E Z*. For rubber valves, packing, etc.
- 61,461. Jackson-Eno Rubber Co., Los Angeles, Cal. The word *Samson*. For inner-shoe tire casings for automobile tires.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1910.

*Denotes Patents for American Inventions.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MARCH 6, 1912.]

- 26,093. India rubber substitutes from gelatine. J. Turns, 190 Warton Terrace, Heaton, Newcastle-on-Tyne.
- 26,127. Improvements in vacuum cleaning apparatus. J. I. Kirby, 62 Trinity Road, West Bromwich.
- 26,152. Puncture proof tire bands. G. W. Day, 27 Carlisle street, Westminster; J. Gilles, 6 Margate Road, Brixton, and A. J. McQuillin, 4 Malmsey Place, Kennington, London.
- 26,207. Pneumatic shuttle threading device. J. Crowther and E. O. Coulthard, 8 Stewart street, Deansgate, and W. Sharkie, 37 Lytham street, Pendleton—both in Manchester.

- 26,269. Tire attachments to rims. G. V. Jenkins, Wellington street, Merthyr Tydvil.
- 26,373. Packing for condenser tubes. A. Brunner, Jubenfeld, W. Marinka, Kritschen, and G. Pescha, Czernowitz—all near Brunn, Austria.
- 26,467. Improvements in vehicle wheels. R. Reid, Logan street, Polmadie, Glasgow.
- 26,468. Improvements in vehicle wheels. R. Reid, Logan street, Polmadie, Glasgow.
- 26,530. Improvements in pneumatic tire treads. H. A. B. Anthony, "Glenthorne," Thame, Oxfordshire.
- 26,591. Protection of rubber insulation. British Insulated and Helsby Cables, Prescott, Lancashire, and E. A. Bayles, Hillside, Helsby, Cheshire.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MARCH 13, 1912.]

- 26,655. Improvements in wheel tires. P. I. Viel, 3 Place Daumesnil, Paris.
- 26,657. Subaqueous audible signals. S. M. Davison, 59 Victoria street, West Somerville, Mass., U. S. A., and Chance Bros. & Co., Lighthouse Works, West Smethwick, Staffordshire.
- 26,706. Puncture closing patches for tires. H. Marles, 24 Essex Road, Manor Park, London.
- 26,755. Inflating pumps. H. W. Dover, Holyrood, St. James, Northampton.
- 26,795. Bag for transporting rubber. R. Rowat, 18 Watson street, Glasgow.
- 26,851. Tire attachment to rims. A. C. Frost, Hazelmere, Four Oaks, Warwickshire.
- 26,870. Smoking apparatus for rubber latex. O. Shaw and R. T. Cooke, Corbett Street Ironworks, Bradford, Manchester.
- 26,928. Organic sulphur compounds. L. Lilienfeld, 1 Zeltgasse, Vienna.
- 26,932. Process of vulcanizing. H. Dogny, and V. Henri, 32 Rue Claude Bernard, Paris.
- 26,977. Rubber plates on ladders. A. E. Downes, 8 Crystal avenue, Spring Bank, Hull.
- *27,003. Improvements in elastic fabrics. W. Kops, 435 Riverside Drive, New York, U. S. A.
- *27,028. Rubber horseshoe pads. J. A. Neil, 1008 Sixth street, N. W., and J. E. Gale, 1105 Eleventh street, N. W.—both in Washington, D. C., U. S. A.
- 27,222. Pneumatic cushions on vehicle wheels. F. F. Ganly, 73 Brunswick street, Weston Gorton, Manchester.
- 27,262. Tire inflating pumps. W. Loebinger, 133 Grosvenor Road, Highbury, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MARCH 20, 1912.]

- *27,288. Cases for toilet articles. J. H. Trayne, 6 Elm street, Groton, Mass., U. S. A.
- *27,289. Process for coating fabrics with rubber. J. Meade, Summer street, Stoughton, Mass., U. S. A.
- 27,345. Signals for punctures of tires. G. Williams, "Elmhurst," Bewdley Hill, Kidderminster.
- 27,352. Combination of solid with pneumatic tires. H. B. Palmer, 61 Ebrington street, Plymouth.
- 27,413. Non-slipping treads. H. Hulot, 3 Place des Batignolles, Paris.
- 27,432. Rubber bands for adjusting shape of hats. A. W. & A. Burgess, Wilton street, Denton, near Manchester.
- 27,466. Breathing apparatus. A. B. Drager and H. and B. Drager, 53 Moisliger Allee, Lübeck, Germany.
- 27,553. Tire attachments to rims. J. Yule, 611 Manchester Road, Poplar, London.
- 27,573. Elastic hair fastenings. A. Brahn, Reichenberger-Strasse, Hohen-schönhausen, Berlin.
- 27,613. Rubber covers for golf club handles. British Insulated and Helsby Cables, Helsby, near Warrington, and F. A. Cole, "Walmore," Dee Banks—both in Cheshire.
- 27,642. Rubber strips on billiard tables. H. A. Crabb, 4 Greyswood street, Streatham, and C. H. Hutchinson and A. H. F. Perl, Raymond House, Theobald's Road—both in London.
- *27,677. Rubber cushions for metal railway sleepers. C. A. Miller and W. M. Carroll, Camden, Texas, U. S. A.
- *27,686. Pressure gauges for pneumatic tires. R. Faries, 274 West Third street, Williamsport, Pa., U. S. A.
- 27,705. Erasing appliance on penholders. E. J. Kehoe, Tumut, New South Wales, Australia.
- 27,864. Closing punctures in pneumatic tires. E. L. Barry, 357 North End Road, Fulham, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MARCH 27, 1912.]

- 28,015. Cushions for pneumatic tires. E. G. Gibb, Johnshaven Spinning Mills, Johnshaven, Kincardineshire.
- 28,080. Tire inflating valves. A. Loiseleur, 11 Rue Ste. Hélène, Lyons, France.
- 28,097. Improvements in fountain pens. W. H. Brecknell, 28 Meadow street, Weston-super-Mare.
- *28,132. Swimming appliances. G. M. Larson, Honeyford, North Dakota, U. S. A.
- 28,260. Tread bands for tires. R. V. Howard, Barton-on-the-Heath, Moreton-in-the-Marsh, Gloucestershire.
- 28,268. Replacing tire covers. H. Morgan, Hadley, near Wellington, Shropshire.
- 28,321. Antiskid devices for road vehicles. S. T. Richardson and R. Price, 3a Rea street, Birmingham.
- *28,336. Improvements in elastic fabrics. W. Kops, 435 Riverside Drive, New York, U. S. A.
- 28,375. Bed lifts for invalids. A. Skeffington, Trevoze, Ulundi Road, Blackheath, London.

- 28,376. Controlling of flow of pulp, etc. E. H. Nutter and Minerals Separation, Ltd., 62 London Wall, London.
- 28,390. Rubber strips for cleaning windows of motors, etc. J. Petit, 44 Boulevard de la Rochelle, Bar le Duc, France.
- 28,442. Improvements in tires. C. W. G. Little, 99 Albemarle Road, Beckenham, Kent, and J. J. Steinitz, The Grand Hotel, Leicester.
- 28,453. Rubber coated fabric for driving belts. F. Reddaway, Cheltenham street, Pendleton, Manchester.
- 28,489. Mixing waste rubber with asbestos. W. E. W. Richards, 50 Great Tower street, London.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application.)

- 433,454 (July 17, 1911). W. J. Dunham and E. W. Peck. Pneumatic cushions for vehicles.
- 433,492 (August 21). L. Scaglin. Antiskid removable protection for pneumatic tires.
- 433,493 (August 21). G. H. N. Howes. Air chamber for pneumatic tires.
- 433,525 (August 23). P. Joseline (called Laroche). Wheel with connected pneumatic tires for automobiles, bicycles, etc.
- 433,737 (August 30). Willson & Moody. Non-bursting cover for pneumatic tires.
- 433,977 (September 5). A. Bailly and E. Bailly. Cover for pneumatic tires.
- 433,983 (September 7). P. Normand. Non-bursting pneumatic tire.
- 434,081 (September 9). H. L. Julien. Protective cover for solid and pneumatic tires.
- 434,159 (September 13). F. Power. Improvements in vehicle tires.
- 434,246 (September 15). H. Le Fournis. Improvement in wheels with elastic tires.
- 434,215 (September 14). Company styled Rauch-Gummi-Verwertungs G. m. b. H. Crude rubber and process of manufacture.
- 434,287 (September 15). C. Terrier. Process of repairing pneumatic tires.
- 434,277 (September 16). Company styled "The Vine and General Rubber Trust, Limited." Improvements in appliances for extracting rubber and other gums from plants, barks, fibers, and similar substances; as well as for cleaning crude rubber and other like substances.
- 434,293 (November 21, 1910). Continental Caoutchouc and Gutta Percha Co. Movable rim.
- 434,302 (September 16, 1911). J. Bideau. Wheel tire for vehicles.
- 434,313 (September 18). C. Carbon. Special cushion for preventing perforations of pneumatic tires.
- 434,383 (July 27). H. P. Haas. Elastic covering for vehicle wheels.
- 434,456 (November 26, 1910). L. Duc. Rotating heel.
- 434,478 (September 21, 1911). T. H. Grigg. Improvements in tires.
- 434,620 (September 4, 1911). O. Bayle. Antiskid protection for pneumatic tires.
- 434,523 (November 28, 1910). Desouches, Riasse & Duron. Process and appliances for the manufacture of artificial rubber or similar elastic substance.
- 434,632 (September 20, 1911). L. Bonnouvrier. Elastic tire for vehicles.
- 434,587 (September 26). Badische Anilin & Soda Fabrik. Process for production of substances having the qualities of rubber.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingénieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with dates of validity).

- 244,971 (from September 1, 1910). C. Lawes Wittewronge, Harpenden, England. Moulding of chopped vulcanized rubber.
- 244,972 (from December 20, 1910). New Eccles Rubber Works, Eccles, England. Apparatus for manufacture of hollow rubber balls.
- 245,552 (from January 27, 1911). Johann Meffert, Framersheim. Apparatus for cleaning old hose pipes and similar articles.
- 245,640 (from June 25, 1909). W. H. Hyatt, London, and Percy Douglas Penn, South Croydon, England. Regeneration of rubber by use of heat and steam.
- 245,910 (from September 2, 1909). F. J. Gleason, Walpole, Mass., U. S. A. Improved process of manufacturing hollow rubber articles.

THE KINGDOM OF BELGIUM.

PATENTS PUBLISHED.

- 241,438 (1912). H. Carroll, Boulevard Pereire 6 bis, Paris. Regeneration of old rubber.
- 241,242 (1912). Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld. Process for production of erythrene.
- 241,272 (1912). G. Reynaud, Rue Salneuve 5, Paris. Process for manufacture of rubber.
- 241,249 (1912). Economic Rubber Washing Machine Company, Limited, London. Machine for treating rubber.
- 242,064 (1912). Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld. Process for manufacture of erythrene and isoprene.
- 238,912 (1912). The Vine and General Rubber Trust, Limited, London. Improvements in extraction of rubber and gums from plants, etc.; as well as for cleaning rubber and like substances.
- 242,283 (1912). A. Heinemann, 10 Summer Terrace, London. Improvements in preparation of synthetic rubber.

Review of the Crude Rubber Market.

THE later days of March witnessed the culmination of the upward movement which had been nearly a fortnight in progress and which had brought up the London price of fine Pará from 4s. 10½d. on March 15, to 5s. 2d. on March 27, the latter being the highest price attained for many months. The causes of this advance formed the subject of discussion from the various points of view of sellers and buyers.

On the one side it was argued that the absorption through the London sales of nearly 2,000 tons within a month, indicated the existence of a healthy demand from consumption, sufficient to keep prices at their new level for the immediate future, while on the other side it was urged that the doubling of Malayan exports as compared with those of the first three months of 1911 was calculated to depress prices, while the more rubber had been recently sold, the less would be wanted in the near future.

Consumers evidently not being encouraged to follow rubber above the 5s. mark and speculators also holding aloof from operations, the prices had receded by March 29 to 4s. 11½d.; remaining about 4s. 11d. till the middle of April, and reaching by 19th 4s. 10½d.; by 25th 4s. 9d.; and by 27th (at time of writing) 4s. 8½d. Thus the London price of fine hard Pará is about 2d. lower than it was at the middle of March, before the commencement of the recent speculative movement.

At the London auctions of April 2 and 3, about 500 tons of plantation rubber were sold, the second day's sale displaying increased animation, resulting in a recovery of 1d. per pound from the rates previously ruling in the open market. During the sales of April 16 and 17, about 300 tons plantation rubber were disposed of at prices unchanged from those previously current.

The month of April has thus been a time of limited operations on the part of buyers and sellers both here and in Europe. The position of consumption is, of course, the predominant factor in the future of the rubber market, in which connection the record demand for tires is regarded as imparting strength to the situation.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and April 29—the current date.

PARÁ.	May 1, '11.	Apr. 1, '12.	Apr. 29, '12.
Islands, fine, new.....	118@120	117@118	110@111
Islands, fine, old.....	120@121	119@120	112@113
Upriver, fine, new.....	126@127	122@122	112@113
Upriver, fine, old.....	130@131	124@125	115@116
Islands, coarse, new.....	61@ 62	67@ 68	63@ 64
Islands, coarse, old.....	none here	none here	—
Upriver, coarse, new.....	89@ 90	98½@ 99	93@ 94
Upriver, coarse, old.....	92@ 93	none here	—
Cametá	75@ 76	72@ 73	67@ 68
Caucho (Peruvian) ball.....	94@ 95	98@ 99	93@ 94
Caucho (Peruvian) sheet.....	none here	none here	—

PLANTATION PARÁ.

Fine smoked sheet.....	140@141	139@140	126@127
Fine pale crepe.....	140@141	138@139	125@126
Fine sheets and biscuits.....	130@131	136@137	119@120

CENTRALS.

Esmeralda, sausage	88@ 89	97@ 98	92@ 93
Guayaquil, strip.....	none here	none here	—
Nicaragua, scrap.....	87@ 88	96@ 97	91@ 92
Panama	none here	none here	—
Mexican, scrap.....	86@ 87	95@ 96	91@ 92
Mexican, slab.....	none here	none here	—
Mangabeira, sheet.....	none here	67@ 68	—
Guayule	58@ 59	69@ 70	—

Balata, sheet.....	83@ 84	90@ 91	85@ 86
Balata, block.....	56@ 57	62@ 63	—

AFRICAN.

Lopori ball, prime.....	115@118	122@123	—
Lopori, strip, prime.....	none here	none here	—
Aruwimi	112@113	none here	—
Upper Congo ball, red.....	109@110	none here	—
Ikelemba	none here	none here	—
Sierra Leone, 1st quality.....	100@102	109@110	—
Massai, red.....	100@102	111@112	—
Soudan, Niggers.....	none here	none here	—
Cameroon ball.....	76@ 77	91@ 92	—
Benguela	70@ 71	78@ 79	—
Madagascar, pinky.....	87@ 88	none here	—
Accra, flake.....	38@ 39	28@ 29	—

Africans are neglected owing to low prices ruling for Pará.

EAST INDIAN.

Assam	none here	none here	—
Pontianak	61¼@61½	63¼@ —	—
Borneo	none here	none here	—

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine.....	5\$050	Upriver, coarse.....	—
Islands, coarse.....	2\$700	Upriver, fine.....	—
		Exchange	16¼d.

Latest Manáos advices:

Upriver, fine.....	5\$950	Exchange	16 9/32d.
Upriver, coarse.....	4\$350		

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "In the matter of commercial paper, the same conditions have prevailed during April as in March, the demand from banks both in town and out being quite good at 4½@5 per cent. for the best rubber names, and 5½@6 per cent. for those not so well known."

NEW YORK PRICES FOR MARCH (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine	\$1.11@1.23	\$1.45@1.66	\$2.09@2.58
Upriver, coarse .....	.93@ .99	1.08@1.18	1.30@1.70
Islands, fine	1.08@1.18	1.30@1.56	2.03@2.45
Islands, coarse .....	.63@ .67	.62@ .90	.90@1.07
Cametá .....	.66@ .72	.79@ .92	.95@1.28

African Rubbers.

NEW YORK STOCKS (IN TONS).

March 1, 1911.....	111	October 1, 1911.....	67
April 1	98	November 1	45
May 1	98	December 1	60
June 1	90	January 1, 1912.....	58
July 1	90	February 1	150
August 1	90	March 1	90
September 1	112	April 1	80

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are in some cases slightly higher.

	May 1.
Old rubber boots and shoes—domestic.....	9½@ 95½
Old rubber boots and shoes—foreign.....	9½@ 9¼
Pneumatic bicycle tires	4½@ 4¼
Automobile tires	9 @ 9¼
Solid rubber wagon and carriage tires.....	9¼@ 9¾
White trimmed rubber	11 @ 11½
Heavy black rubber	4¾@ 5
Air brake hose	5 @ 5½
Garden hose	1½@ 1¾
Fire and large hose.....	2¼@ 2½
Matting	7½@ 1

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.						
	Fine and Medium.	Coarse.	Total 1912.	Total 1911.	Total 1910.	
Stocks, February 28.....	252	27	= 279	165	189	
Arrivals, March	1,332	756	= 2,088	1,054	3,211	
Aggregating	1,584	783	= 2,367	1,219	3,397	
Deliveries, March	1,485	772	= 2,257	823	3,117	
Stocks, March 31.....	99	11	= 110	396	280	

PARA. ENGLAND.						
	1912.	1911.	1910.	1912.	1911.	1910.
Stocks, February 28, tons	3,240	3,245	465	1,055	1,385	510
Arrivals, March	3,115	2,955	3,890	1,183	1,594	632
Aggregating	6,355	6,200	4,355	2,238	2,979	1,142
Deliveries, March	3,625	2,570	3,520	1,408	1,114	602
Stocks, March 31.....	2,730	3,630	835	830	1,865	540

Rubber Stock at Para.

Stock for January 31 showed an increase caused by heavier arrivals, while that of February 29 shows a slight decrease. The stock of March 31 displayed a further reduction.

January 31, 1911.....	tons	2,085	September 30, 1911.....	tons	3,102
February 28		3,787	October 31		3,320
March 31		4,214	November 30		3,050
April 30		5,104	December 31		2,675
May 31		5,350	January 31, 1912.....		3,370
June 30		4,545	February 29		3,240
July 31		3,884	March 31		2,730
August 31		3,450			

Liverpool.

WILLIAM WRIGHT & Co. [April 1:]

Fine Para.—A strong and active demand has been experienced. Prices advanced from 4s. 7½d. to 5s. 2½d., but declined in the last few days to 4s. 10½d. America has again been buyer of very large quantities of rubber spot and afloat, practically clearing out all the old reserve stock held here. Shipments to New York are about 500 tons, and a considerable further quantity is in course of shipment. Closing value: Hard Fine, 4s. 10½d.; Island, 4s. 9d.

PARA RUBBER VIA EUROPE.

POUNDS.		
MARCH 28.—By the <i>Kroonland</i> —Antwerp:		
Meyer & Brown (Fine).....	9,000	
MARCH 28.—By the <i>Batavia</i> —Hamburg:		
Ed. Maurer (Fine)	9,000	
APRIL 1.—By the <i>Canadian</i> —Liverpool:		
General Rubber Co. (Fine).....	135,000	
Robinson & Co. (Fine).....	35,000	
Henderson & Korn (Fine).....	13,500	
In transit (Fine).....	45,000	228,500
APRIL 6.—By the <i>Baltic</i> —Liverpool:		
New York Commercial Co. (Fine).....	25,000	
APRIL 6.—By the <i>Pennsylvania</i> —Hamburg:		
New York Commercial Co. (Fine).....	7,000	
Robert Badenhop (Fine).....	5,500	
Wallace L. Gough Co. (Fine)....	5,000	17,500
APRIL 8.—By the <i>Caronia</i> —Liverpool:		
Arnold & Zeiss (Fine).....	115,000	
New York Commercial Co. (Fine).....	60,000	
Raw Products Co. (Coarse).....	34,000	209,000
APRIL 18.—By the <i>Cevic</i> —Liverpool:		
New York Commercial Co. (Fine).....	56,000	
General Rubber Co. (Fine).....	30,000	86,000
APRIL 15.—By the <i>Carmania</i> —Liverpool:		
New York Commercial Co. (Fine).....	125,000	

Arnold & Zeiss (Fine).....	11,000	
In transit (Fine).....	68,000	204,000
APRIL 16.—By the <i>President Lincoln</i> —Hamburg:		
Ed. Maurer (Fine).....	7,000	
Meyer & Brown (Fine).....	7,000	
New York Commercial Co. (Fine).....	2,000	16,000
APRIL 20.—By the <i>Celtic</i> —Liverpool:		
New York Commercial Co. (Fine).....	34,000	
Henderson & Korn (Caucho)....	30,000	
New York Commercial Co. (Caucho).....	8,000	72,000
APRIL 22.—By the <i>Bohemian</i> —Liverpool:		
New York Commercial Co. (Fine).....	40,000	

OTHER NEW YORK ARRIVALS.

CENTRALS.		
POUNDS.		
[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]		
MARCH 25.—By the <i>El Mundo</i> —Galveston:		
Charles T. Wilson	*20,000	
MARCH 25.—By the <i>African Prince</i> —Bahia:		
J. H. Rosbach & Bros.	*75,000	
Adolph Hirsch & Co.	*11,000	*86,000
MARCH 26.—By the <i>Alliance</i> —Colon:		
E. Nelson Tibbals & Co.	5,000	
W. R. Grace & Co.	3,000	
Mecke & Co.	2,500	

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

July 7, 1911.....	4/2½	December 8, 1911.....	4/5½
July 14	4/5½	December 15.....	4/4½
July 21	4/7	December 22.....	4/4
July 28	4/8	December 29.....	4/3½
August 4	4/7½	January 5, 1912.....	4/4½
August 11	4/7½	January 12	4/5½
August 18	4/7½	January 19.....	4/5½
August 25	4/10½	January 26.....	4/8
September 1	4/8½	February 2	4/7
September 8	4/9	February 9	4/6½
September 15.....	5/	February 16.....	4/6¾
September 22.....	4/10½	February 23.....	4/7½
September 29.....	4/8	March 1	4/7½
October 6	4/7	March 8	4/9
October 13	4/5	March 15.....	4/10½
October 20	4/6½	March 22.....	5/1½
October 27	4/4	March 29	4/11½
November 3.....	4/3	April 5.....	4/11
November 10.....	4/4½	April 12.....	4/11
November 17.....	4/3	April 19.....	4/10½
November 24.....	4/3½	April 25.....	4/9
December 1.....	4/4½		

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

APRIL 5.—By the steamer *Aidan*, from Manáos and Pará.

	Fine.	Medium.	Coarse.	Caucho.	TOTAL.
New York Commercial Co....	162,900	48,200	107,500	249,700=	568,300
Arnold & Zeiss	118,200	26,000	196,400	205,100=	545,700
General Rubber Co.	187,900	35,600	87,900	22,600=	334,000
Meyer & Brown	45,200	9,700	24,200	38,900=	118,000
Henderson & Korn.....	10,700	700	13,900	33,000=	58,300
Hagemeyer & Brunn.....	12,500	5,400	7,300	700=	25,900
H. A. Astlett Co.	17,800	2,800		3,800=	24,400
G. Amsinck & Co.	400		5,900		6,300
Total	555,600	128,400	443,100	553,800=	1,680,900

APRIL 16.—By the steamer *Boniface*, from Manáos and Pará.

New York Commercial Co....	120,200	27,200	89,200	152,100=	298,700
Arnold & Zeiss	58,900	13,200	152,500	24,600=	249,200
General Rubber Co.	103,800	32,000	40,900	16,900=	193,600
Meyer & Brown	24,700	1,700	30,400		56,800
De Lagotellerie & Co.	11,800	300	17,800		29,900
Hagemeyer & Brunn.....	12,900	1,400	11,200		25,500
Total	332,300	75,800	342,000	93,600=	843,700

APRIL 25.—By the steamer *Clement*, from Manáos and Pará:

Arnold & Zeiss.....	124,600	37,700	181,600	79,500=	423,400
New York Commercial Co....	80,200	34,200	75,300	30,400=	220,100
Meyer & Brown	83,500	6,700	24,900	65,500=	180,600
Laurence Johnson & Co.	22,400		5,900		83,700
General Rubber Co.	45,000	6,400	1,000		52,400
De Lagotellerie & Co.	11,100	1,400	19,100		31,600
Henderson & Korn.....	5,700		14,500		20,200
Hagemeyer & Brunn.....	5,400	300	700	600=	7,000
G. Amsinck & Co.	2,100		2,600	1,700=	6,400
Total	380,000	86,700	325,600	233,100=	1,025,400

Isaac Brandon & Bros.	2,500	
Dumarest Bros. & Co.	2,000	
R. G. Barthold	1,500	
Piza Nephews & Co.	1,000	
Wessels, Kulenkampff & Co.	1,000	18,500
MARCH 26.—By the <i>Rechambeau</i> —Havre:		
In Transit		22,500
MARCH 27.—By the <i>Creole</i> —New Orleans:		
Meyer & Brown	3,500	
Robinson & Co.	2,500	
G. Amsinck & Co.	1,500	
A. N. Rotholz	1,000	8,500
MARCH 27.—By the <i>Guantanamo</i> —Tampico:		
Ed. Maurer	*100,000	
N. Y. Commercial Co.	*67,000	
Arnold & Zeiss	*22,500	
For Europe	*90,000	*279,500
MARCH 28.—By the <i>Thames</i> —Colombia:		
Isaac Brandon & Bros.	11,500	
G. Amsinck & Co.	8,000	
Maitland, Coppel & Co.	5,000	24,500
MARCH 29.—By the <i>Mimnetenka</i> —Colombia:		
Arnold & Zeiss	11,000	
MARCH 29.—By the <i>Mexico</i> —Vera Cruz:		
Laurence Johnson & Co.	4,500	
J. W. Wilson & Co.	3,500	
W. L. Wadleigh	3,000	
Harburger & Stack	1,500	
H. Marquardt & Co.	1,000	13,500

APRIL 1.—By the <i>Vigilante</i> =Tampico: N. Y. Commercial Co. *155,000 Ed. Maurer *70,000 Arnold & Zeiss *35,000 *260,000	
APRIL 1.—By the <i>Verdi</i> =Bahia: Adolph Hirsch & Co. 225,000 J. H. Rossbach & Bros. 25,000 250,000	
APRIL 4.—By the <i>Bermuda</i> =Hamburg: Ed. Maurer *34,000 Adolph Hirsch & Co. 30,000 64,000	
APRIL 4.—By the <i>Proteus</i> =New Orleans: Manhattan Rubber Mfg. Co. 7,000 G. Amsinck & Co. 2,500 Robinson & Co. 2,000 T. N. Morgan 2,000 13,500	
APRIL 6.—By the <i>Esperanza</i> =Frontera: E. Steiger & Co. 9,000 Harburger & Stack 4,000 General Export Comm. Co. 5,000 W. L. Wadleigh 3,000 Neuss, Heschkin & Co. 2,000 Hermann Kluge 1,000 For Europe 9,000 33,000	
APRIL 8.—By the <i>Amerika</i> =Hamburg: Arnold & Zeiss 80,000	
APRIL 8.—By the <i>Santiago</i> =Tampico: N. Y. Commercial Co. *135,000 Arnold & Zeiss *55,000 Ed. Maurer *45,000 For Europe *125,000 *360,000	
APRIL 8.—By the <i>Cerna</i> =Liverpool: General Rubber Co. 9,000 Adolph Hirsch & Co. 7,000 16,000	
APRIL 9.—By the <i>El Sud</i> =Galveston: Charles T. Wilson *15,000	
APRIL 9.—By the <i>Minneaska</i> =London: Arnold & Zeiss 11,500	
APRIL 10.—By the <i>Carrillo</i> =Colon: G. Amsinck & Co. 3,500 A. Rosenthal & Sons. 3,500 Andean Trading Co. 2,500 Isaac Brandon & Bros. 2,000 Graham, Hinkley & Co. 2,000 Gillespie Bros. & Co. 1,000 Wessels, Kulenkampff & Co. 1,000 15,500	
APRIL 10.—By the <i>Olympic</i> =London: Arnold & Zeiss 22,500	
APRIL 11.—By the <i>Trent</i> =Columbia: G. Amsinck & Co. 11,500 Maitland, Coppel & Co. 9,000 A. M. Capen's Sons. 8,000 J. Sambrada & Co. 6,000 A. Held 5,000 Isaac Brandon & Bros. 3,500 Kunhardt & Co. 2,500 Roldau & Van Sickle. 1,000 Mecke & Co. 1,000 47,500	
APRIL 12.—By the <i>Morro Castle</i> =Frontera: E. Steiger & Co. 9,000 Harburger & Stack 7,000 General Export Comm. Co. 4,000 Laurence Johnson & Co. 3,500 Graham, Hinkley & Co. 3,000 H. Marquardt & Co. 2,500 P. V. Rubio & Co. 2,000 31,000	
APRIL 12.—By the <i>Creole</i> =New Orleans: G. Amsinck & Co. 3,500 Wessels, Kulenkampff & Co. 2,500 Eggers & Heinlein 2,000 8,000	
APRIL 13.—By the <i>Panama</i> =Colon: G. Amsinck & Co. 36,500 Laurence Johnson & Co. 4,500 American Trading Co. 4,000 Dumarest Bros. & Co. 3,000 Pablo Calvet & Co. 3,000 Wessels, Kulenkampff & Co. 2,500 Isaac Brandon & Bros. 2,000 George Siefelle & Co. 1,500 Lanman & Kemp 1,500 Roldau & Van Sickle. 1,500 Gillespie Bros. & Co. 1,000 J. Sambrada & Co. 1,500 Meyer & Hecht 1,000 63,500	

APRIL 16.—By the <i>El Mundo</i> =Galveston: Continental-Mexican Rubber Co. *80,000	
APRIL 16.—By the <i>President Lincoln</i> =Hamburg: Ed. Maurer *11,500	
APRIL 16.—By the <i>Comus</i> =New Orleans: G. Amsinck & Co. 3,500 Manhattan Rubber Mfg. Co. 2,500 Meyer & Brown 2,500 Wessels, Kulenkampff & Co. 2,000 10,500	
APRIL 16.—By the <i>Seguana</i> =Tampico: Ed. Maurer *135,000 Arnold & Zeiss *70,000 N. Y. Commercial Co. *70,000 For Hamburg *45,000 *320,000	
APRIL 17.—By the <i>Prinz August Wilhelm</i> =Colon: G. Amsinck & Co. 8,000 Isaac Brandon & Bros. 3,000 Schutte Bunemann & Co. 2,500 A. Held 2,000 Andean Trading Co. 1,500 Caballero & Blanco 1,500 J. Sambrada & Co. 1,000 H. Marquardt & Co. 1,000 20,500	
APRIL 20.—By the <i>El Norte</i> =Galveston: Continental-Mexican Rubber Co. *77,000 Charles T. Wilson *20,000 *97,000	
APRIL 20.—By the <i>Monterey</i> =Vera Cruz: E. Nelson Tibbals & Co. 2,500 J. W. Wilson & Co. 2,000 Mecke & Co. 500 5,000	
APRIL 22.—By the <i>Bayamo</i> =Tampico: N. Y. Commercial Co. *135,000 Arnold & Zeiss *35,000 Ed. Maurer *100,000 For Europe *55,000 *325,000	
APRIL 22.—By the <i>Rochambeau</i> =Havre: In Transit 45,000	
APRIL 22.—By the <i>Westerwald</i> =Colon: G. Amsinck & Co. 9,000 Andean Trading Co. 2,000 N. Y. Commercial Co. 2,000 13,000	
APRIL 24.—By the <i>Byron</i> =Bahia: Adolph Hirsch & Co. 90,000	
APRIL 24.—By the <i>El Dia</i> =Galveston: Continental-Mexican Rubber Co. *70,000	
APRIL 24.—By the <i>Oruba</i> =Columbia: Maitland, Coppel & Co. 9,000 G. Amsinck & Co. 8,000 A. M. Capen's Sons. 5,000 R. Castillo & Co. 3,500 Kunhardt & Co. 3,500 A. Held 2,500 Caballero & Blanco 2,500 J. Sambrada & Co. 1,500 Isaac Brandon & Bros. 1,500 Mecke & Co. 1,000 Dumarest Bros. & Co. 1,000 39,000	

AFRICAN.

MARCH 25.—By the <i>Celtic</i> =Liverpool: Robinson & Co. 80,000 James T. Johnstone 35,000 115,000	
MARCH 26.—By the <i>Batavia</i> =Hamburg: George A. Alden & Co. 20,000 Henderson & Korn 34,000 Ed. Maurer 35,000 Meyer & Brown 22,500 Arnold & Zeiss 25,000 Rubber Trading Co. 9,000 James T. Johnstone 13,500 Wallace L. Gough Co. 5,500 164,500	
MARCH 28.—By the <i>Kroonland</i> =Antwerp: Meyer & Brown 11,500 Henderson & Korn 5,500 17,000	
MARCH 29.—By the <i>President Grant</i> =Hamburg: General Rubber Co. 45,000 George A. Alden & Co. 22,500 Henderson & Korn 22,500 Meyer & Brown 22,500 Robert Badenhop 11,000 Wallace L. Gough Co. 5,500 129,000	
APRIL 1.—By the <i>La Savoie</i> =Havre: George A. Alden & Co. 7,000	
APRIL 1.—By the <i>Canadian</i> =Liverpool: General Rubber Co. 65,000 Ed. Maurer 45,000 Henderson & Korn 11,500 Arnold & Zeiss 11,000 Robinson & Co. 5,500 138,000	
APRIL 3.—By the <i>Finland</i> =Antwerp: Meyer & Brown 34,000 Arnold & Zeiss 70,000 Ed. Maurer 13,500 117,500	
APRIL 3.—By the <i>Noordam</i> =Rotterdam: Meyer & Brown 22,500	
APRIL 4.—By the <i>Bermuda</i> =Hamburg: Ed. Maurer 11,500 Rubber Trading Co. 5,500 Robert Badenhop 5,500 George A. Alden & Co. 1,000 23,500	

APRIL 5.—By the <i>Hudson</i> =Havre: General Rubber Co. 56,000 Meyer & Brown 30,000 86,000	
APRIL 6.—By the <i>Baltic</i> =Liverpool: James T. Johnstone 30,000 Ed. Maurer 11,000 George A. Alden & Co. 4,500 45,500	
APRIL 6.—By the <i>Pennsylvania</i> =Hamburg: George A. Alden & Co. 50,000 Ed. Maurer 50,000 General Rubber Co. 15,000 Wallace L. Gough Co. 11,500 Robinson & Co. 10,000 James T. Johnstone 20,000 156,500	
APRIL 8.—By the <i>Carolina</i> =Liverpool: Robinson & Co. 60,000 George A. Alden & Co. 40,000 Arnold & Zeiss 25,000 General Rubber Co. 13,500 Raw Products Co. 11,500 150,000	
APRIL 8.—By the <i>Minneaska</i> =London: George A. Alden & Co. 15,000 James T. Johnstone 2,500 17,500	
APRIL 8.—By the <i>Amerika</i> =Hamburg: Arnold & Zeiss 30,000 George A. Alden & Co. 13,500 Wallace L. Gough Co. 11,500 Meyer & Brown 11,000 Rubber Trading Co. 7,000 Henderson & Korn 5,500 Ed. Maurer 6,000 L. Blitz 4,500 89,000	
APRIL 8.—By the <i>Cervic</i> =Liverpool: George A. Alden & Co. 90,000 General Rubber Co. 98,000 Ed. Maurer 56,000 Robinson & Co. 35,000 James T. Johnstone 13,500 Rubber Trading Co. 7,000 Earle Bros. 7,000 A. W. Brunn 4,500 Henderson & Korn 11,500 322,500	
APRIL 9.—By the <i>Vaderland</i> =Antwerp: Meyer & Brown 27,000 L. Blitz 5,500 32,500	
APRIL 9.—By the <i>Germania</i> =Lisbon: Arnold & Zeiss 15,000 Wallace L. Gough Co. 11,000 General Rubber Co. 9,000 35,500	
APRIL 13.—By the <i>Victorian</i> =Liverpool: General Rubber Co. 158,000 Arnold & Zeiss 90,000 Ed. Maurer 11,500 259,500	
APRIL 13.—By the <i>Filomachi</i> =Lisbon: General Rubber Co. 100,000 Robert Badenhop 5,500 105,500	
APRIL 15.—By the <i>Carmania</i> =Liverpool: General Rubber Co. 60,000 Ed. Maurer 45,000 Robinson & Co. 22,500 127,500	
APRIL 16.—By the <i>Lapland</i> =Antwerp: Rubber Trading Co. 15,000 Arnold & Zeiss 11,500 Meyer & Brown 7,000 33,500	
APRIL 16.—By the <i>President Lincoln</i> =Hamburg: George A. Alden & Co. 100,000 Ed. Maurer 33,500 General Rubber Co. 22,500 Henderson & Korn 11,500 Raw Products Co. 4,500 James T. Johnstone 7,000 Robert Badenhop 3,000 182,000	
APRIL 16.—By the <i>Niagara</i> =Havre: Arnold & Zeiss 80,000 General Rubber Co. 45,000 Meyer & Brown 30,000 155,000	
APRIL 17.—By the <i>Chicago</i> =Havre: George A. Alden & Co. 30,000 Rubber Trading Co. 9,000 Ed. Maurer 15,000 General Rubber Co. 8,000 62,000	
APRIL 20.—By the <i>Celtic</i> =Liverpool: George A. Alden & Co. 25,000 James T. Johnstone 15,000 Ed. Maurer 11,500 Robinson & Co. 7,000 58,500	
APRIL 22.—By the <i>Bohemia</i> =Liverpool: Ed. Maurer 18,500 Wallace L. Gough Co. 4,500 23,000	
APRIL 23.—By the <i>Gevlades</i> =Lisbon: General Rubber Co. 78,000 Wallace L. Gough Co. 7,000 85,000	
APRIL 24.—By the <i>Kroonland</i> =Antwerp: Arnold & Zeiss 34,000	

EAST INDIAN.

[*Denotes plantation rubber.]

MARCH 26.—By the <i>Rochambeau</i> =Havre: in transit *45,000	
MARCH 28.—By the <i>Kroonland</i> =Antwerp: Meyer & Brown *30,000	

POUNDS.

MARCH 26. —By the <i>Minnetanka</i> =London: General Rubber Co. \$30,000 Arnold & Zeiss \$115,000 N. Y. Commercial Co. \$70,000 Meyer & Brown \$40,000 Ed. Maurer \$45,000 Robinson & Co. \$13,500 L. Littlejohn & Co. \$11,500 Raw Products Co. \$7,000 General Rubber Co. \$90,000 Charles T. Wilson \$11,500			753,500
MARCH 29. —By the <i>President Grant</i> =Hamburg: Meyer & Brown \$22,500 APRIL 2. —By the <i>Upland</i> =Antwerp: Meyer & Brown \$30,000 Arnold & Zeiss \$11,000			*41,000
APRIL 3. —By the <i>Minnetanka</i> =London: General Rubber Co. \$275,000 Arnold & Zeiss \$70,000 James T. Johnston \$45,000 Meyer & Brown \$40,000 Ed. Maurer \$5,000 Henderson & Korn \$7,000 General Rubber Co. \$35,000			497,000
APRIL 3. By the <i>Baguio</i> =Singapore: Ed. Maurer \$22,500 Wallace L. Gough Co. \$5,000			*27,500
APRIL 5. —By the <i>Neidenfels</i> =Colombo: Meyer & Brown \$75,000 N. Y. Commercial Co. \$65,000 Robert Badenhop \$7,000			*147,000
APRIL 9. —By the <i>Minnetanka</i> =London: N. Y. Commercial Co. \$195,000 Ed. Maurer \$55,000 General Rubber Co. \$34,000 Meyer & Brown \$45,000 Arnold & Zeiss \$20,000 James T. Johnston \$13,500 Henderson & Korn \$11,500 In transit \$45,000 Robinson & Co. \$30,000 General Rubber Co. \$40,000			489,000
APRIL 9. —By the <i>Vaderland</i> =Antwerp: Meyer & Brown \$60,000 Arnold & Zeiss \$11,000			*71,000
APRIL 10. —By the <i>Rheinfels</i> =Colombo: Meyer & Brown \$100,000 New York Commercial Co. \$45,000 Ed. Maurer \$9,000 H. W. Peabody & Co. \$7,000			*161,000
APRIL 10. —By the <i>Olympic</i> =London: Arnold & Zeiss \$15,000 New York Commercial Co. \$7,000 General Rubber Co. \$3,500			*25,500
APRIL 15. —By the <i>Shmosa</i> =Singapore: L. Littlejohn & Co. \$25,000 Otto Iseinstein & Co. \$13,500 Ed. Maurer \$25,000 L. Littlejohn & Co. \$18,000			81,500

APRIL 16. —By the <i>Upland</i> =Antwerp: Meyer & Brown \$6,000 Robinson & Co. \$9,000			*65,000
APRIL 16. —By the <i>Upland</i> =Colombo: Meyer & Brown \$50,000 New York Commercial Co. \$30,000 Ed. Maurer \$13,500 Arnold & Zeiss \$11,500 Robert Badenhop \$3,000			*138,000
APRIL 17. —By the <i>Upland</i> =Hamburg: Ed. Maurer \$13,500 APRIL 17. —By the <i>Upland</i> =Rotterdam: Arnold & Zeiss \$22,500 Wallace L. Gough Co. \$4,500 Manhattan Rubber Mfg. Co. \$3,500			30,500
APRIL 18. —By the <i>Mesaba</i> =London: Ed. Maurer \$100,000 New York Commercial Co. \$80,000 General Rubber Co. \$90,000 James T. Johnston \$9,000 Wallace L. Gough Co. \$9,000 Meyer & Brown \$4,500			*292,500
APRIL 23. —By the <i>Banataise</i> =Colombo: Meyer & Brown \$40,000 APRIL 24. —By the <i>Kronland</i> =Antwerp: Meyer & Brown \$65,000			*65,000

GUTTA-JELUTONG. MARCH 9. —By the <i>Prince</i> =Hamburg: Haebler & Co. \$200,000 APRIL 3. By the <i>Aragona</i> =Singapore: L. Littlejohn & Co. \$225,000 Haebler & Co. \$375,000 APRIL 4. —By the <i>Bermuda</i> =Hamburg: Haebler & Co. \$350,000 APRIL 8. —By the <i>Cette</i> =Liverpool: George A. Alden & Co. \$9,000 APRIL 15. —By the <i>Shmosa</i> =Singapore: L. Littlejohn & Co. \$650,000 Wallace L. Gough Co. \$300,000 Haebler & Co. \$225,000 W. R. Russell & Co. \$100,000			1,275,000
APRIL 18. —By the <i>Pathan</i> =Singapore: L. Littlejohn & Co. \$755,000 Haebler & Co. \$325,000 Wallace L. Gough Co. \$200,000			1,100,000

GUTTA-PERCHA. APRIL 3. By the <i>Baguio</i> =Singapore: Haebler & Co. \$22,500 APRIL 4. —By the <i>Bermuda</i> =Hamburg: Robert Soltan & Co. \$19,000 APRIL 8. By the <i>Cette</i> =Liverpool: Earle Bros. \$7,000			7,000
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APRIL 18. —By the <i>Pathan</i> =Singapore: L. Littlejohn & Co. \$37,000 BALATA. MARCH 26. By the <i>Mayra</i> =Trinidad: Frame & Co. \$3,000 MARCH 29. —By the <i>President Grant</i> =Hamburg: George A. Alden & Co. \$11,000 APRIL 4. By the <i>Bermuda</i> =Hamburg: Earle Brothers \$9,000 APRIL 9. —By the <i>Minnetanka</i> =London: Ed. Maurer \$15,000 APRIL 10. —By the <i>Upland</i> =Colon: Bartling & DeLeon \$6,500 APRIL 12. —By the <i>Upland</i> =Valparaiso: Yglesias Lobo & Co. \$5,500 American Trading Co. \$3,000 Ed. Maurer \$2,000 Middleton & Co. \$1,500			12,000
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BOSTON ARRIVALS. MARCH 1. —By the <i>Afghan Prince</i> =Singapore: State Rubber Co. (East Indian) \$25,000 State Rubber Co. (Jelutong).... \$135,000 L. Littlejohn & Co. (Jelutong).... \$110,000 MARCH 10. —By the <i>Dacre Castle</i> =Singapore: State Rubber Co. (East Indian) \$22,500 Wallace L. Gough Co. (Jelutong) \$110,000 L. Littlejohn & Co. (Jelutong).... \$150,000 MARCH 25. —By the <i>Iferma</i> =Liverpool: Arnold & Zeiss (Africans)..... \$33,500			
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CUSTOM HOUSE STATISTICS. PORT OF NEW YORK—MARCH, 1912. Imports: India-rubber \$11,682,987 Balata \$33,854 Guayule \$799,216 Gutta-percha \$10,344 Gutta-jelutong (Pontianak).... \$4,136,300 Total \$16,662,701 Exports: India-rubber \$26,814 Balata \$2,227 Guayule \$455,504
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EXPORTS OF INDIA-RUBBER FROM PARA FOR MARCH, 1912. (IN KILOGRAMS).

		NEW YORK.					EUROPE.						
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.		
Zarges, Berringer & Co.....	183,370	81,216	301,760	173,878	740,224	365,683	36,334	53,957	123,324	579,298	1,319,522		
Ad. H. Alden, Ltd.....	118,554	25,735	156,039	137,855	438,183	162,052	21,008	62,789	41,771	287,620	725,803		
Gordon & Co.....	174,378	28,630	137,887	57,693	398,588	41,110	5,035	41,530	57,170	144,845	543,433		
Suárez Hermanos & Co., Ltd.....						78,232	4,607	3,847	23,714	110,400	110,400		
M. Ulmann & Co.....						2,550		7,920	96,880	107,350	107,350		
Pires Teixeira & Co.....	11,390	1,020	11,220	16,500	40,130	5,780	340	8,250		14,370	54,500		
Nunes Sobrinho & Co.....	6,630	2,550	14,520	330	24,030	6,800	510	1,320		8,630	32,660		
De Lagotellerie & Co.....	10,030	2,380	10,560		22,970						22,970		
R. O. Ahlers & Co.....						18,005		2,980	406	21,391	21,391		
A. de La Rivière & Co.....													
Sundry shippers.....	5,100		11,220		16,320	170		1,980		2,150	18,470		
Itacatiara, direct.....						4,350		3,120	5,070	12,540	12,540		
	509,452	141,531	644,206	386,256	1,680,445	684,732	67,834	187,693	348,335	1,288,594	2,969,039		
Manãos, direct.....	410,632	126,863	183,714	251,037	972,246	430,260	101,499	129,619	271,186	932,564	1,904,810		
Iquitos, direct.....	8,465		1,305	1,924	11,694						11,694		
Total, March, 1912.....	928,549	268,394	828,225	639,217	2,664,385	1,114,992	169,333	317,312	619,521	2,221,158	4,885,543		
Total, February, 1912.....	1,162,009	304,910	771,647	405,698	2,644,264	1,474,610	126,185	291,077	600,664	2,492,516	5,136,780		
Total, January, 1912.....	752,317	112,959	437,915	64,926	1,368,117	1,382,605	180,547	339,253	451,773	2,354,178	3,722,299		

MANAOS EXPORTS OF INDIA-RUBBER FOR MARCH, 1912 (IN KILOGRAMS).

		NEW YORK.					EUROPE.						
EXPORTERS.		Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.	
Zarges, Ohliger & Co.....	93,856	19,860	46,364	26,444	186,524	220,329	28,826	39,912	148,417	437,484	624,008		
Adelbert H. Alden, Ltd.....	103,900	34,234	50,833 ³	116,934	307,901	129,868	48,017	44,498	41,651	264,034	571,935		
Gordon & Co.....	150,104	46,995	56,366	30,906	284,371	5,548	9,241	6,764	62,084	83,637	368,008		
De Lagotellerie & Co.....						44,501	11,565	23,997	17,268	97,331	97,331		
W. Peters & Co.....				35,022	35,022	1,348	939	1,799	2,522	6,608	41,630		
Semper & Co.....						9,440	640	2,218		12,298	12,298		
Sundries.....						1,499	623	3,471	635	6,228	6,228		
<hr/>		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	
Tiquitos direct	349,860 8,465	101,089	153,563 1,305	209,306 1,024	813,818 11,694	412,533	99,851	122,659	272,577	907,620	1,721,438 11,694		
<hr/>		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	
Total, March, 1912.....	358,325	101,089	154,868	211,230	825,512	412,533	99,851	122,659	272,577	907,620	1,733,132		
Total, February, 1912.....	516,991	162,958	243,151	192,861	1,115,961	618,528	87,104	115,259	388,034	1,208,925	2,324,886		
Total, January, 1912.....	693,997	113,367	224,019	132,277	1,163,660	754,036	128,176	145,464	31,297	1,346,972	2,510,633		



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ANNUAL MEETING OF THE UNITED STATES RUBBER CO.

The twentieth annual meeting of the stockholders of the United States Rubber Co., will be held at the principal office of the company, in the city of New Brunswick, New Jersey, on Tuesday, May 21, 1912, at 12 o'clock noon, for the election of directors and for the transaction of any business that may come before the meeting, including considering and voting upon the approval and ratification of all purchases, contracts, acts, proceedings, elections and appointments by the Board of Directors or the Executive Committee since the nineteenth annual meeting held May 16, 1911, and of all matters referred to in the twentieth annual report which will be sent to stockholders before the meeting. The transfer books will not be closed, but the New Jersey Corporation Law will not allow to be voted any share of stock which shall have been transferred after May 1, 1912.

Antwerp.

RUBBER STATISTICS FOR MARCH.

DETAILS.	1912.	1911.	1910.	1909.	1908.
Stocks, Feb. 28.....kilos	521,956	539,207	516,534	331,433	907,104
Arrivals in March.....	250,964	483,396	263,188	544,126	692,398
Congo sorts.....	172,449	365,463	174,167	410,838	587,972
Other sorts.....	7,642	60,342	31,452	112,645	93,077
Plantation sorts.....	70,873	57,591	57,569	20,643	11,349
Aggregating.....	772,920	1,022,603	779,722	875,559	1,599,502
Sales in March.....	413,904	376,989	280,620	277,704	462,610
Stocks, March 31.....	359,016	645,614	499,102	595,855	1,136,892
Arrivals since Jan. 1.....	1,038,700	1,269,668	1,039,679	1,128,092	1,517,809
Congo sorts.....	730,472	940,962	830,830	781,387	1,347,423
Other sorts.....	30,618	161,177	80,155	277,064	144,718
Plantation sorts.....	277,610	167,529	128,694	69,641	25,668
Sales since January 1.....	1,354,422	1,212,266	1,082,089	1,127,972	1,387,811

RUBBER ARRIVALS FROM THE CONGO.

MARCH 21.—By the steamer *Bruxellesville*:

Bunge & Co.....(Société Générale Africaine) kilos	70,200
do.....(Chemins de fer Grands Lacs)	8,100
do.....(Intertropical)	200
do.....(Cie. Forest and Minière)	2,000
do.....(Comptoir Commercial Congolais)	2,500
do.....(Alberta)	800
do.....	1,600
Société Coloniale Anversoise.....(Cie. du Lomami)	5,060
do.....(Cie. du Kasai)	60,700
L. & W. Van de Velde.....(Comfina)	19,000
do.....	2,500
Willært Freres.....	6,000
Edmund Van Steensel.....	700
	179,360

APRIL 10.—By the steamer *Elizabethville*:

Bunge & Co.....(Intertropical) kilos	11,300
do.....(Comptoir Commercial Congolais)	4,500
do.....	2,300
Société Coloniale Anversoise.....(Haut Congo)	16,400
do.....(Kouango franc)	12,900
L. & W. Van de Velde.....(Cie. du Kasai)	72,000
do.....(Comfina)	9,500
do.....	6,500
Willært Freres.....	10,000
	145,400

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to March 25, 1911 and 1912. Compiled by the Ceylon Chamber of Commerce.]

	1911.	1912.
To Great Britain.....pounds	695,304	1,548,988
To United States.....	449,576	987,218
To Belgium.....	72,582	355,810
To Australia.....	10,167	26,754
To Germany.....	6,282	21,330
To Canada.....	9,971	12,121
To Austria.....		2,717
To Japan.....	11,953	2,181
To Norway and Sweden.....		39
To Italy.....	750	
To Holland.....	100	
To India.....	40	

Total 1,256,725 2,957,158

[Same period 1910—521,528; same 1909—226,975.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

	Singapore.	Penang.	Port Swet-	Total
To—	March 7.	Feb. 15.	Feb. 29.	1912.
Great Britain.....pounds	1,727,515	1,112,134	2,766,067	5,605,716
Continent.....	65,982	12,933	353,427	432,342
Japan.....	24,521	6,457		30,978
Australia.....	7,040			7,040
Ceylon.....		13,639	91,066	104,705
United States.....	336,420			336,420
Total.....	2,161,478	1,145,163	3,210,560	6,517,201
Same period, 1911.....	1,226,855	467,040	2,479,933	4,173,828
Same period, 1910.....	581,467	296,450	1,329,538	2,207,455
Same period, 1909.....	519,576	337,204		856,780

MANUFACTURING
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Edited by HENRY C. PEARSON—Offices, No. 15 West 38th Street, NEW YORK.

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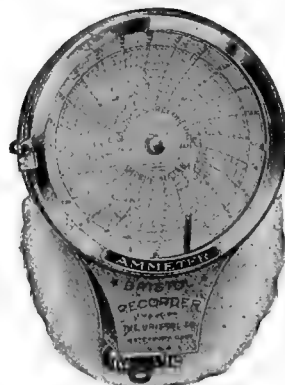
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COTTON FABRICS IN RUBBER MANUFACTURE.

RUBBER manufacturers have had so much to learn concerning crude rubber in its infinitely varying forms, in compounding ingredients, in cures, and in causes of deterioration, etc., that the apparently simple cotton fabrics used have not received the careful and analytical attention that they perhaps demand. Not that the fabrics have not been studied and carefully selected, but the knowledge of the rubber manufacturer has not in many cases been founded upon the prior knowledge of the fabric manufacturer. Hence, it often happens that the nature of a fabric being only partly understood, it is called upon to do service for which it is distinctly unfitted. To handle a fabric successfully, the rubber manufacturer should be able to measure accurately its elasticity, its distortion under strain, its shrinkage under moisture treatment, its altered construction during the process of drying, its absorption of moisture in the store house, its surface loosening of lint or dust from compression in the roll or in handling—all these and more.

All fabric has a certain elasticity, that may be used

to advantage or may be a decided disadvantage, depending upon how it is used. This elasticity may be almost wholly removed and the goods given a permanent set. Therefore, as fabric can be coated while either elastic or set, it should be made in the first place to fit the completed article, and this must be determined beforehand, and done in the cotton mills. Goods when received may conform to the purchase specifications before the rubber is applied, but be radically different before they are made up. 200 threads in the warp and 200 in filling to the 10-inch square may be according to specifications, but 192 threads due to elongation or stretching, and 208 to 210 threads transversely caused by contraction may be the count of 10 inches square of the fabric when coated or shaped into place.

The shrinkage, by application of water or other liquid, to obtain a permanent moisture-proof effect is desirable to meet certain conditions. The rubber man may effect this shrinkage when he desires that condition of the fabric, or it may be done unknowingly during some of the processes through which the fabric passes. The fibre is, during its manufacture, subjected to a certain percentage of humidity—a necessary part of the cotton mill man's knowledge. This moisture must be removed in the rubber mill—a necessary part of the rubber man's knowledge. The action of moisture while being absorbed by the fibre, and the action of that same moisture while being driven off from that fibre is a matter upon which a full knowledge has not yet been obtained. Yet some of the laws are determined and their application understood. The goods change during the processes of drying, and a little experimental work will aid the rubber manufacturer to determine just what changes take place, and fit him to allow for them in the finished product.

Goods after being received from the mill are usually stored in cold damp store-rooms, or, at times, where atmospheric conditions are very unfavorable. They may and usually do absorb moisture from the air. Being rolled tightly causes a certain permanent set or fixed condition—not always to the advantage of the rubber man. They are sent out from the mill in a comparatively clean condition, practically free from adhering dirt or loose fibre; but even with the standing of a roll of fabric while awaiting treatment some of the short portions of fibre and finer lint become loosened; and during the drying processes much more of this adhering matter is loosened. This free material is a decided detriment in coating, as whatever portion

of rubber adheres to lint does not adhere to the fabric.

One more point the rubber mill man has learned by experience—that the cleaner, straighter and freer from wrinkles or distortion the fabric, the better will be the results.

In some cases, particularly in the spreader coating, many treat the fabric as of very little value; yet cases can be cited where the application of preventive mechanism would save many dollars spent in restoration. All of which leads up to the very plain corollary that where the cotton knowledge of the rubber man does not mesh with the cotton knowledge of the manufacturer of fabrics there is trouble.

RUBBER CLUB AMBITIONS.

A NOTABLE change in the constitution of the Rubber Club of America was made on the occasion of the annual meeting in Boston, April 29. Heretofore the club has been purely social, and be it remarked particularly successful in that important detail. If matters of trade interest were brought to its attention, committees were appointed to look after them, and then the club's responsibility ceased. Under the amended constitution the club undertakes "the furtherance of educational and scientific research in india-rubber production and manufacture, and the promotion of the welfare of the rubber industry."

The additional class known as "firm membership," with annual fees of \$25, is expected not only to bring the needs of the trade before the club in concrete form, but to furnish funds for the correction of evils and abuses—present and future.

The new type of members will not in any way interfere with, or handicap, the original aim of the club, as while they will possess all of the privileges of the active and associate members, their individual or collective efforts, differences, failures and triumphs will be threshed out between themselves, and paid for out of their own pockets.

That the "firm members" will have ample field for work goes without further argument. There is still rubber stealing; there is standardization of rubber, of ingredients, of products; there are unfair tariffs, absurd state laws, overlapping trade-marks, antiquated and injurious trade customs. Effort for the amelioration of abuses of this sort will doubtless be welcomed by the trade, and, if successful, redound to the glory of the club. There might also be efforts to do certain things that will help one class and damage another,

which would result in a row. Garden hose manufacturers would not view with equanimity the employment by the mackintosh men of a rain maker in the hose season, for example.

GIANTS OF THE RUBBER TRADE.

THE consolidation of The B. F. Goodrich Co. and the Diamond Rubber Co. is altogether the most interesting news feature in the world's rubber trade this month. It takes very little analysis to see what a distinct advantage both companies secure by coming together. Their plants are side by side, divided only by a narrow street. The active heads of the business not only belong to the same social set, but all have their homes in the vicinity of Perkins Hill, and are likely therefore to be well in touch with each other during business hours and after.

Then, too, department consolidation offers many opportunities for economy over even the present splendid organizations. Instead of two mechanical departments there will doubtless be one, and so on in the consolidation of departments for solid, bicycle and automobile tires, shoes, etc. Such arrangement also in purchasing and selling is right in the line of large economies and greater efficiency.

The shrinkage of 120 selling agencies to one half as many, and the saving in marketing and advertising will naturally be very large.

That the United States Rubber Co. appreciates the strong position that the other corporation holds is, perhaps, reflected in the following paragraph from the president's address at the last annual meeting:

"Among the things that I advocate is the immediate construction by the United States Rubber Co. of the largest and best tire plant in the world in order to meet the growing demand for our tires.

"I feel that we are warranted in this undertaking from my belief that the tire industry is still in its infancy, and that although the principle of the 'survival of the fittest' may be found to apply, the splendid organization of the United States Tire Co. will be able to market a much larger volume of tires than the United States Rubber Co. with its present capacity (although now operating four tire factories) is able to manufacture."

No two companies could be more differently arranged or administered. The factories of the United States Rubber Co. are to be found in Massachusetts, Rhode Island, Connecticut, New Jersey, Ohio, Michigan, Canada, and Illinois. The American factories of the new company are centered in Akron. The United States Rubber Co. makes all lines of rubber goods, with the exception of hard rubber. The

new company makes the same lines, including hard rubber. The United States Rubber Co. plans a new automobile tire plant to equal or excel anything that the new company possesses. It has also as an anchor to the windward its big rubber plantation in Sumatra. Whether or not the Goodrich and Diamond have anything similar nobody seems to know. Certainly their pioneers have been pretty well over the tropical world for the past five or six years. It would, therefore, seem that the rubber trade now has two huge corporations battling for the world's rubber business—a peaceful warfare, and, in the event that the rubber business increases as it has in the past, one that will not alter general conditions or appreciably handicap other manufacturers.

OUR ANTIQUATED PATENT LAWS.

IT is doubtful if Congress in the present swirl of politics will find time to devote to the proper revision of our patent laws; but that they should be revised is a subject hardly open to discussion. Over forty years have elapsed since the present patent laws were enacted. During that time there has been a vast increase in inventions, with accompanying patents, and there have been many developments in the world of economics that render the laws as they stand today in many respects totally inadequate to protect the best interests of society.

The fundamental purpose of granting an inventor the protected benefits of his invention for a certain number of years is not so much to reward him for his achievement as it is to encourage him to continue his activities, in order that society at large may benefit from his work. In other words, it is the permanent welfare of society rather than the temporary advantage of the individual that is the main concern of the law.

Among the unhappy developments since the present patent laws were enacted is the practice, extensively engaged in by some corporations, of purchasing a patent from the inventor, not with the intention of using the patent, but rather with the contrary intention of suppressing it. This condition obviously renders nugatory the whole purpose of the patent law, and the statutes should be so amended as adequately to correct this abuse. It might prove a salutary plan to punish the suppression of a useful invention by a forfeit of the patent. In any event, it is time that our patent laws were revised, and the President's message to Congress asking for the appointment of a commission to investigate the whole patent

situation, with a view to recommending desirable changes is possibly the best solution of the problem.

IS THERE A SATISFACTORY RUBBER SUBSTITUTE?

IN dealing with this question in the columns of the "Gummi-Zeitung," a writer remarks that rubber substitutes are known to have the defect of not forming a homogeneous compound with rubber. The particles of substitutes can be accurately detected with the microscope. But from an ideal filling substance for rubber, it is justly expected, that it will dissolve in the substance of the rubber.

This "indifference" of rubber substitutes towards rubber is due to the great divergence in their chemical composition; one being a derivate of glycerine and the other a hydro-carbon. But this indifference is really only an undersirable accessory circumstance; the possibility not being excluded that in conjunction with the saponification of the oils and other combinations, hydro-carbons may be obtained, which through polymerization, sulphurization, or oxidation may give elastic products. In view of the close relationship of such products to rubber, it may be assumed, that they will form homogeneous compounds with the latter in cases where they cannot be used alone in place of rubber.

Such products would be advantageously distinguished from ordinary rubber substitutes by the fact of their not exercising any unfavorable influence upon the substance of the rubber, while ordinary substitutes, through saponification, produce a slightly acid reaction, thereby injuring the rubber with which they are used.

BRAZILIAN DUTIES ON AMERICAN GOODS.

UNDER the existing agreement between the United States and Brazil, the first-named country is accorded a preferential rebate of 20 per cent. of the duty on various articles, including rubber goods, colors, and milk. It is now proposed to increase this rebate to 40 per cent. and, at the same time, to extend it to other articles. The Brazilian Minister of Finance has, however, called attention to a declaration by the Brazilian Congress, to the effect that preferences can only be accorded in virtue of agreements, providing for mutual concessions of that nature. On these grounds the maintenance of the present agreement is recommended by the minister.

While American manufacturers have been making great efforts to push trade with Brazil, the preference hitherto allowed has not been sufficient to produce important results. With this preference doubled and with

the proposed new steamer line from New Orleans to Rio de Janeiro, matters would be different.

The course of American trade with Brazil in manufactures of rubber, as indicated by the statistics published annually by the INDIA RUBBER WORLD, shows the following results for the fiscal years ending June 30:

	1908.	1909.	1910.	1911.
Belting, hose and packing	\$11,861	\$25,310	\$17,470	\$34,442
Boots and shoes.	18,962	23,746	20,785	35,548
All other.....	29,044	35,406	66,890	80,475
Exports of rubber manufactures	\$59,867	\$84,462	\$105,145	\$150,465
Imports of rubber	\$19,284,856	\$34,265,807	\$47,321,181	\$28,521,865

The most recent statistics to March 31, 1912, show the following results for the first nine months of the current fiscal year:

MANUFACTURE OF RUBBER NINE MONTHS ENDING MARCH.

	1911.	1912.
Belting, hose and packing.....	\$26,027	\$30,099
Boots and shoes	25,153	34,728
Tires for automobiles	4,642	9,349
All other tires.....	5,490	3,738
All other manufactures	46,806	59,439
	\$108,118	\$137,353

While the amount of rubber manufactures shipped from this country to Brazil is still relatively small, and naturally far below that of the rubber imported from there, the fact of its having nearly doubled within the last two years justifies the hope that with lower Brazilian duties and improved steam communication, a still further development would result.

THE PERENNIAL INVENTION OF TIRES.

THE patent reports for the last twenty years show that over 4,000 patents have been issued at the Patent Office in Washington for tires—chiefly for the automobile, and for tire auxiliaries and accessories. This number does not include that great array of devices in the way of substitutes for tires, as for instance various metal springs to be placed around the hub of the wheel, in the spokes, or in the rim. These 4,000 patents, averaging 200 a year, have been issued simply for tires, or tire parts—most of them for rubber tires.

Surprise is occasionally expressed that inventors should go on year after year applying their energies to this question, when such a small percentage of these devices ever meet with any recognition or success. The surprising feature, however, is not that the number is so large, but that it is not larger, in view of the transcendent reward that awaits the successful inventor. At the present time—including all kinds, automobile, motorcycle and bicycle—about 5,000,000 tires are sold and consumed in

this country each year, and the annual outlay is not far from \$100,000,000. It is not to be wondered at that, with such a lure, the inventor persists in his work. Charles Goodyear worked, first and last, about 14 years before he found the correct solution of the practical treatment of rubber; and yet, financially speaking, the reward that awaited him was not one hundredth part of the reward that would fall to the man who should discover how to make an easy, serviceable, low-cost tire. When Goodyear died, in 1860, 20 years after his discovery of vulcanization, the whole rubber industry of the United States did not amount to \$6,000,000 in annual value, or 6 per cent of the value of the present tire industry.

After having become accustomed to riding on air, it is safe to say that the automobile world will never be satisfied with anything less buoyant and comfortable. The inventor's problem, therefore, is to replace the present pneumatic tire with something just as resilient and easy-riding, but with a greater endurance, and at a marked decrease in expense. Will his problem be solved? In the light of past human experience it is quite safe to say that it will be, if not wholly, at least in part; but there is nothing in the present outlook to indicate that that final solution will in any way dislodge rubber from its present commanding position in the tire world.

BRAZILIAN LEGISLATION GOING INTO EFFECT.

IT is satisfactory to note that the government of Brazil means business. The provisions of the new law (a full extract of which appears in this issue) are not being allowed to lie dormant.

Two-thirds of the surveys connected with the proposed new railways will be finished by June 30, and the completion of the surveys will follow shortly afterwards. It is understood that the government is prepared to spend the equivalent of about \$92,000,000 on the new lines, intended for the development of rubber cultivation.

A company is said to have been organized at Bahia (with the co-operation of English capital) for the purpose of establishing a rubber goods factory at that point, under the encouragement afforded by the new measure.

With a view to improving the conditions of rubber cultivation, the Brazilian government is said to be importing a large number of drills of American manufacture. Experts in their use accompany the drills, which are intended for the boring of artesian wells. The government is taking steps to distribute these drills among the various plantations standing in need of them.

Up the Orinoco.

By the Editor of "The India Rubber World."

Columbus and Sir Walter Raleigh.—Views of Other Travellers.—Aboard a Stern-Wheeler.—Crossing the Gulf of Paria.—Daybreak on the Great River.—Birds and Beasts.—Barrancas.—Guayana la Vieja.—San Felix, the Balata Port.—Ashore at Ciudad Bolivar.—The Great Balata Territory.—Gathering, Coagulating and Shipping Balata.—Rubber in the Alto Orinoco. Two New Kinds of Rubber.

COLUMBUS, sailing into the mouth of the Orinoco, believed that he had at last found the site of the Garden of Eden. Sir Walter Raleigh, going further up the great river, went on record that here was to be found the famed El Dorado. Travelers since then have, as a rule, not only been out of sym-



THE LOWER ORINOCO.

pathy with the two romantic and distinguished gentlemen above quoted, but have gone to the other extreme. The Orinoco has been pilloried as a miasmatic, mosquito-infested, fever-ridden, tropical inferno. As for the country through which it runs, revolution, oppressions and hardships are in the main the burden of their narratives. The fact is one's experiences, good or bad, depend upon the individual, his preparation and his fitness for

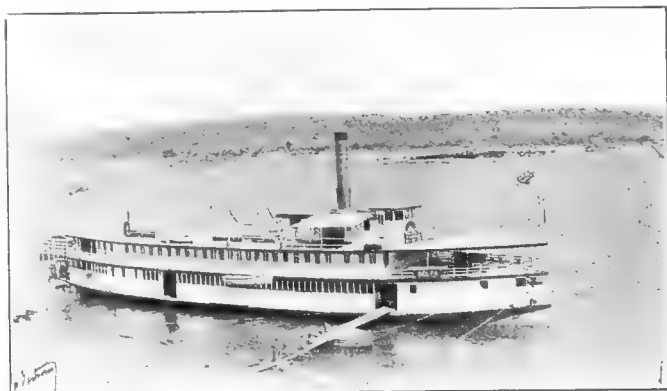


SAN FELIX, THE GREAT BALATA PORT.

such a journey. It is possible to be very uncomfortable, to get fever, to get into trouble. It is equally possible to make the journey and suffer not the slightest hardship and enjoy perfect health all of the time.

To go comfortably, one should leave all extraneous baggage behind, forget former impressions of the great river and of Venezuela, and get on terms of friendship with one or more Venezuelan officials. Then it is easy, interesting—nay, fascinating.

Those who have been in the gulf of Paria, and have visited Trinidad, have noted occasional, huge double-decked, light-draught steamboats of the type once used on the Mississippi—



THE ORINOCO STEAMER "DELTA."

"stern-wheelers." These are Orinoco boats, and it was upon one of these, *The Delta*, that we embarked, provided with tickets, that looked like ornate stock certificates, and armed with a declaration visé by the Venezuelan consul, that our luggage contained only articles for personal use. The lower deck we soon discovered was for baggage and the hammocks of the second-class passengers; the next contained the dining saloon, a well-stocked "cantina," and some twenty large staterooms. This deck was roofed in, but was open at the ends, and a door at each end of the staterooms, together with skylights in abundance, gave fine ventilation and a promise of coolness.

As usual, when it was time to start a late boatload hove in sight and we waited; then after a pause came a later boat;



BARRANCAS.

then in frantic haste the latest boat—and then some more. Finally the anchor came up, crusted with sticky clay, and two deck hands with hose and a stiff brush spent half an hour cleaning it while we drifted. At last there came a clanging of bells, and the big boat sedately kicked up her heels and started.

Night fell while we were still ploughing the murky waters of the gulf, and as there was absolutely nothing to do, we went to bed. There were bolts on the stateroom doors, but they

would not work; the mattress was thin and the spring sagged sadly; but sleep soon came in spite of the enthusiastic Spanish conversos, some going on in the living saloon.

At midnight as the boat entered the rough water at the bar that guards the mouth of the great river there was a grand awakening, but it did not last long, as very soon smooth water was reached, and quiet reigned for a time.

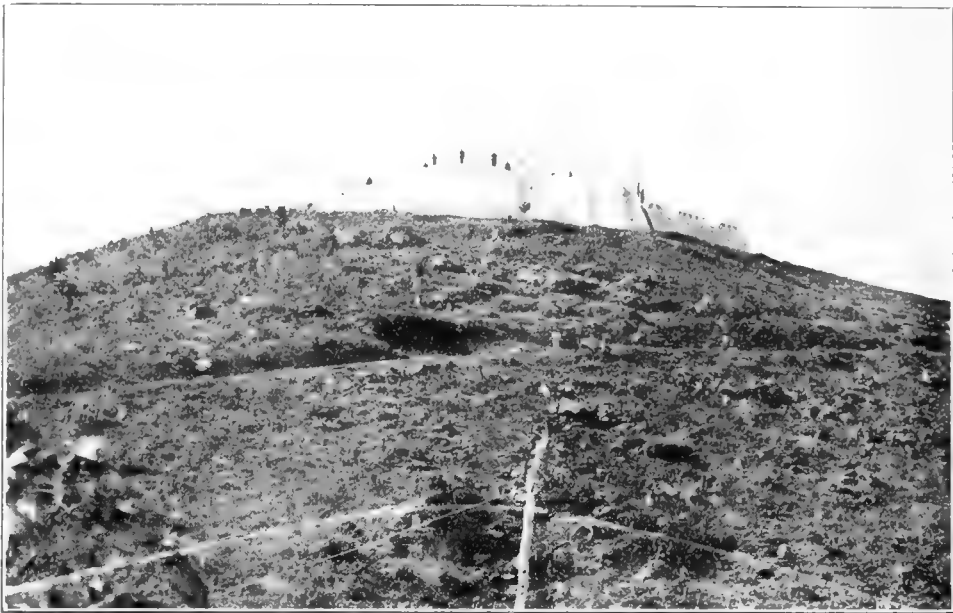
The "deckers" began to chatter at daybreak, and there was nothing for it but to get up, take a shower and wait for coffee. Once on deck the glory of the morning amply repaid the loss of sleep. The boat was slipping quietly and rapidly through a placid stream not more than 300 yards wide, and except for the absence of palms, it might have been the "narrows" of the Amazon. There

gravely at us. They were grotesquely colored, red and black, and were said to be the "howlers" which greet the rising sun with roars that would fill a lion with envy.

Occasionally a palm-thatched hut was to be seen ten feet above low water mark, and, according to some of the passengers, an equal number of feet below high water.

Fringing the stream were occasional plantings of native corn and bananas. The river banks average from 6 to 10 ft. high, and the country, as a rule, was well forested. The river was low, as it was the dry season, and in

many places the lead was kept going, as boats frequently get caught on the sand bars. I had pictured the Orinoco as a muddy stream running through swampy lowlands. In reality it showed



FORT AT GUAYANA LA VIEJA.



BIRDSEYE VIEW OF CIUDAD BOLIVAR.

was another difference in the abundant bird life—parrots, great flocks of macaws, white swans, wading birds—white, gray and blue. So near did we run to the shore that the masses of bloom



WATER FRONT, CIUDAD BOLIVAR.

that decked the trees could be plainly seen in all of their varied color and beauty. Once we passed close to a giant tree, in the upper branches of which four great monkeys sat and gazed



CUTTING DOWN BALATA TREE.

more sand than mud banks, and indeed the higher up we got, the more pronounced were the great sand spits that project out into the widening channel.

Our first stop occurred in mid-stream, when three Indians in a dug-out intercepted us to put a passenger aboard. He, however, apparently concluded not to go after all, secured a bottle of rum and returned to his canoe. In the meantime one of the Indian women sold a green parrot for a couple of strings of beads, so that our fifteen minutes' wait was not wholly in vain.

Further up stream the banks showed a clay formation, mottled red and yellow with a light yellow stratum at the top. They were cut down as straight as if the work had been done by a spade, and with the crown of jungle were exceedingly picturesque.

We stopped at the town of Barrancas to discharge cargo and passengers, the latter being a picturesque young American engineer, dressed in khaki, with an ammunition belt and revolver swung over his shoulder, who was on his way to rich iron mines of which he was the superintendent. Incidentally, this ore is all shipped into the United States, and there has not

The chief and only industry at Barrancas is a great establishment for packing and tinning fresh meats, and is owned by Germans. From there we turned down-stream and entered another estuary, and then came into the Orinoco proper. The next event of interest was the meeting with *The Masparo*, a small

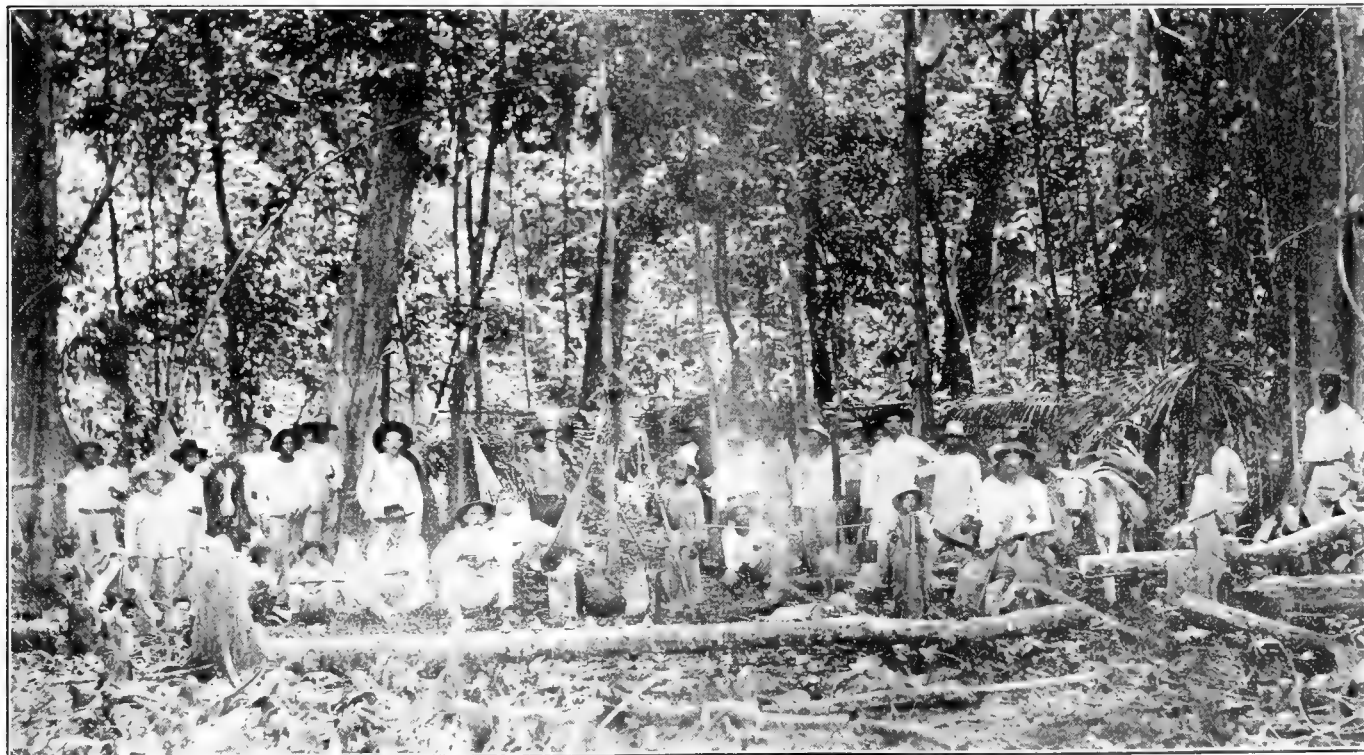
edition of our own craft—with which we exchanged mails, saluted and parted. By mid-afternoon ranges of mountains could be discerned in the distance, and as the sun set we were able to descry on a lofty eminence the two forts of Guayana la Vieja. One of these is untenanted, but in the other is a company of soldiers, whose duty it is to challenge all who

pass up the river. In response to our whistle a boat put off, secured the passenger list and allowed us to proceed. This list was at once telegraphed up to the authorities in Bolivar and had any of us been undesirable, they would have been all ready for us.

The main river was fully half a mile wide now, and as the



BLEEDING BALATA TREE AFTER FELLING.



CAMP OF BALATA MEN, LOWER ORINOCO.

been the slightest attempt on the part of the Venezuelan Government to handicap the enterprise, as yet. We found the steamship *Manzares* anchored here, waiting for the rainy season and water enough to go higher up-stream.

moon was full, it was almost as bright as day. At nine o'clock we stopped at San Felix, the great balata port. About all we did was to put a few passengers ashore with their extremely varied and nondescript luggage. Then on we went in mid-stream under

the moonlight. To the right the river bank showed for miles a line of sand so white as to appear almost phosphorescent. Above it loomed the black mass of the forest and the grey black of the sky. On the left bank the jungle came close to the water's edge, except where an occasional great sand flat or a mass of boulders broke the dense shadow.

At six o'clock the next morning we were tied up to the high sandy-terraced bank, above which rises Ciudad Bolivar. Boats do not often anchor here, as the river is narrow and very deep. How deep none seem to know, but a resident merchant said that a German vessel lost 80 fathoms of chain in trying to get a hold on the river bottom. Even if this were at a time of high water it would argue considerable depth. The ancient name of the city, which was Angostura, will be recognized as relating to the narrowness of the river at this point. Although tied up to the bank, no one was allowed to go ashore. So we breakfasted and waited. Finally, about nine o'clock, the Harbor Master came aboard, the gang plank was put in place, and the passengers began to file ashore. During the wait the assistant purser, noticing my Knight Templar watch-fob, claimed me as a brother Mason, told of lodges at Bolivar and Caracas, and secured for me a trusty porter. This porter, yeleft Raimon, led us to an excellent hotel and returned in the course of two hours to say that the Customs officials were ready to examine our luggage. So much



OX-CART FROM INTERIOR WITH BALATA.

has been told of the repacity and greed of these officials that we naturally were somewhat nervous. We met, however, only courteous treatment and the promptest possible passing of our luggage. All of which we appreciated.

Balata, from some one of the Mimusops, or rather from several of them, is gathered in Venezuela, chiefly in the great low-lying territory known as the "Territorio Delta." About 100 miles from the sea the Orinoco is divided into five great channels and more than a score of lesser ones. This forms a system of waterways running through a vast heavily-forested country that has never been thoroughly explored, and known only to the Indians who penetrate its fastnesses in search of Balata. It is an important industry in Venezuela, the yearly crop amounting to more than \$2,000,000.

It is constantly in evidence, on the river steamers, in heaps on the river bank, in carts, or carried on the heads of porters. The daily papers note its arrival, and on the day we landed "El Annuncio" reported that on the *Balandra Carmen Mariana*, from San Felix, there were 2,221 planchas of balata consigned to J.

Acquatella & Co., and 9 to Boccado & Co., while on the *Dos Hermanos*, also from San Felix, Blohm & Co. received 59 planchas; J. Acquatella & Co., 158; Bonada & Co., 12; Pichani-



BALATA PORTERS.

oni & Co., 17, and Dalton & Co., 248. Considering this was not the busy season, this was doing very well.

On receipt the *planchas* are at once cut in half by a huge knife, known as the guillotine, and examined for purity, just as *peiles* of rubber are at Pará and Manáos.

All of the Venezuelan balata is block. One of the handlers explained this as due to the laziness of the native gatherers. They make the block by boiling the latex until it coagulates, and then pressing it into shape. They destroy the trees by cutting them down in spite of the efforts of the government to prevent



BALATA ON SHORE READY TO BE LOADED ON RIVER BOATS.

it. The gathering is done along the banks of the rivers, and while there are plenty of big trees in the interior, it does not pay as yet to send expeditions to gather the gum. The natives claim that when balata trees have been cut down many others at once spring up, so that there is no danger of ultimate exhaus-

tion. San Felix is the great balata rendezvous of the lower Orinoco. Here the *planchas* are brought in small boats or in ox-carts overland, and shipped to the big importing and exporting houses in Bolivar.

That Venezuela possesses great rubber forests none can deny. The vast territory adjacent to Brazil, contiguous to the Rio Negro, the Cassiquiare, and the upper Orinoco produces considerable *Hevea* rubber which comes sometimes down the Orinoco to Ciudad Bolivar, and sometimes down the Rio Negro to Manáos. It will be remembered that the Cassiquiare river forms a navigable channel between the head waters of the Orinoco and the Rio Negro—that is, during the rainy season. This rubber area, said to contain nearly 100,000,000 acres, has never been thoroughly exploited. The *Hevea rigidifolia* is probably the source of the rubber gathered in this territory, and not the *Brasiliensis*. Over toward the border of British Guiana there are also *Heveas*, but whether good or bad, none know as yet. There seem to be no *Hevea* trees on the lower Orinoco. In fact, none can be discovered after several days of journeying above Bolivar, and even beyond the rapids, which are the end of steam-boat navigation.

The headquarters for rubber traders—that is, in the upper country—is San Fernando, in the Alto Orinoco, and near the Venezuelan territory of Amazonas. From this point on, it is easy to get from the Government concessions for the exploitation of rubber forests. Many of the tributaries of the great river above San Fernando are said to have no *Hevea* trees at all. But that there are other and new rubber producers is probable. Mr. Kuhn, of the house of Blohm & Co., Bolivar, who do a large business in rubber and balata, showed samples of rubber that were new to me, at least; one called "Caura" closely resembled cameta, while another known to the natives as "Mata-palo" was not unlike a fine grade of Niger Gutta. In this upper region there is a goodly population, and in and about the Cassiquiare much rubber is gathered. The gathering starts in September to October and lasts until the floods begin in March or April. The rubber is worked much as it is in Brazil, the tappers laying out "*estradas*," tapping, smoking, etc., in the time honored way. The laborers, however, are not Cearenses, but native Indians. At the end of the season they gather at San Fernando and barter their rubber for the price in silver then ruling in Bolivar. The annual output is from \$800,000 to \$1,000,000 worth.

The story of our delightful stay at the Hotel Mononi, at Bolivar, where the food was by far the best we had enjoyed all winter, of visits to the great cattle ranges, of the journey down the river, and how we ran aground, would be in a measure a repetition of what has already been chronicled. Besides, there is also the second Venezuelan trip yet to be described.

(To be continued.)

RUBBER IN THE BELGIAN CONGO.

THE most recent contribution to the existing literature affecting the Belgian Congo is the address of M. Ed. Leplae, the Director General of Agriculture for the Belgian Colonies, delivered at Antwerp on the invitation of the "Association des Planteurs de Caoutchouc."

Planting had been commenced in 1893 of *Manihot Glaziovii*, in 1894 of *Funtumia* and in 1896 of *Hevea*. These first plantings were rather experimental than otherwise, the number of trees, being small. It was only about 1897 that regular plantations were started, and by private enterprise. By 1900 several companies had established relatively important plantations, one of them having over 24,000 *Manihot* trees, while another had 3,000 *Heveas* and 150 *Ficus Elastica* trees.

RUBBER VINES.

About this time there was displayed a general feeling in favor of vines, instead of rubber trees. Large quantities of the former were planted at the government stations and by private individuals. In 1900 the "Afrikaansche Handelsvennootschap" at Iboka had 26,000 rubber vines, and the "Plantations Lacourt" 20,000, while other companies had more than 100,000. By 1910 there were more than 12,000,000 rubber vines on government soil. The vines seem, however, to have proved disappointing as to results, it not having yet been found possible to cultivate them in such a way as to yield a profit in due time. As M. Leplae remarked, the maintenance of vines on an extensive scale is always too costly. The underwood grows so luxuriantly that it chokes the young, very slow-growing plants. Production not having covered expenses, most of these vines have been abandoned in favor of the more profitable cultivation of rubber trees. He added that in all the equatorial colonies the cultivation of vines was regarded as devoid of prospects.

FUNTUMIA.

The first rubber tree planted on a large scale was the "Ireh," or *Funtumia*, the first trees having been planted at Boma in 1894. As a result of the government's co-operation in the work there were by 1910 3,490,000 *Funtumia* trees in the possession of the State.

HEVEA BRASILIENSIS.

Although today so much appreciated, *Hevea* at first only received transitory attention, the generally accepted theory being that *Funtumia*, as an indigenous species, would be more successful in Africa than a foreign variety. Hence the *Hevea* plantations long remained experimental in their character and received all the less attention, as the method of wound-renewal was not yet known. *Funtumia*, the native tree, conquered. The neglect of *Hevea* was likewise due to the fact that at the period in question the first tappings of those trees in Ceylon had been small in yield. The success of modern tapping methods, and the wonderful development of the Malayan plantations were necessary for the revival in the Congo of faith in that species. This development was facilitated by the disappointments to which *Funtumia* had given rise.

Through his personal observation in Malaya, on the occasion of his visit in 1910, M. Leplae was impressed with the conviction that the future belongs to *Hevea*. At first there was much difficulty experienced in getting the seed from Ceylon, but as soon as it was found that old native *Heveas* produced a sufficiency of seeds, cultivation rapidly increased in the Congo.

MANIHOT GLAZIOVII.

Although *Manihot* is well adapted to existing conditions, standing drought and growing in a poor soil, it has only been planted in the Congo to a limited extent. At the same time its cultivation is on an important scale in German East Africa, where there are 14,000,000 trees of this species.

PRESENT CONDITIONS.

The Belgian government owns the following trees this year in the Congo:

<i>Funtumia</i>	3,490,000
<i>Hevea</i>	250,000
<i>Manihot</i>	156,000

In conclusion M. Leplae remarks: "Such is a brief outline of the varied history of rubber cultivation in the Belgian Congo. It teaches us that our rubber plantations are still far from being models, but that we have a good deal to 'modernize' with respect to them."

The Significance of Gravity in Rubber Manufacture.

By Lothar E. Weber, Ph.D.

IT is in large measure due to the ease of its execution that the determination of the specific gravity test is so largely favored by rubber manufacturers. Not only is great importance attached to the gravity of a manufactured article, but in the case of raw materials—compounding ingredients, shoddies, substitutes, etc.—it is the criterion, more so than any other whereby judgment is passed on the goods, provided the samples in question are not chemically analyzed.

Unfortunately, the determination of the gravity as usually carried out, suffers from a basic error, so that the values obtained, if not altogether worthless, are apt to be very misleading. The error referred to is incurred owing to the porosity of the sample. It is obvious that an article which is porous weighs less per unit volume, than if it were entirely free from pores, and accordingly in the former case its apparent gravity is lower. The actual gravity, however, is identical in both cases, although the common method of determining gravity does not reveal it to be so.

From the standpoint of a cost department the actual gravity of an article is of considerable importance. If the goods are to be sold by bulk or linear measure, a minimum gravity is desirable. If, on the other hand, the goods are disposed of by weight, a maximum gravity is aimed at. I am not aware that any manufacturer of compounding materials has succeeded in raising the gravity, actual or apparent, above its normal value. The task would indeed be a difficult one. But it is, on the other hand, a very simple matter to lower the gravity of a sample of whiting, zinc, etc. Needless to say, it is the apparent gravity that is affected in this case, the porosity of the sample having been increased.

In actual practise, this lowering of the apparent gravity is accomplished by bringing the article to a very fine state of subdivision. The number of particles per unit volume is thereby increased, and as the particles are always separated from each other by an air space, the number of air spaces per unit volume is likewise increased. In other words, the porosity is increased, and the apparent gravity lowered. It is therefore to be expected, since the question of porosity is usually disregarded, that a manufacturer of, say, whiting lauds his product simply because the latter is of a lower gravity than ordinary whiting. The salesman will put forth the very plausible argument that by using this particular whiting, the gravity of the mixing mill, as a result, be lower than if whiting of ordinary gravity were employed. Whiting, however, being a chemical compound can possess only one gravity, as a fundamental law of chemistry states that every compound has a definite and constant gravity, and chemical laws do hold good, even if manufacturers are somewhat tardy in accepting them.

Since then, this particular whiting owes its lower gravity merely to enclosed air, what will be the fate of the latter in actual use? Under normal conditions, the enclosed air will all be forced out on the mixing mill and the resulting compound will have the identical gravity as if ordinary whiting had been used. The sceptic can readily convince himself on this point by a very simple experiment. Let him mix two compounds consisting in each case of 50 per cent. rubber, 46 per cent. whiting and 4 per cent. sulphur. In one case, let him use whiting of ordinary gravity, in the other case, the whiting of the lower gravity. After mixing and vulcanizing it will be found that both compounds have the identical gravity, in spite of the fact that in one case whiting of lower gravity was employed.

It is fortunate, that under normal conditions, the enclosed air

is all forced out. Otherwise, the manufactured article would still retain the porosity due to the whiting, and in this condition it is very prone to decay owing to oxidation and consequent hardening. It is very common among the cheaper reclaimed rubbers, and not uncommon among the more expensive ones, that they exhibit a pronounced porosity. The minuteness of the pores often prevents their perception by the unaided eye, but they are readily discernible by means of a lens. It is to the interest of the shoddy manufacturer to make this porosity as large as possible, as consequent low gravity results. The rubber manufacturer believes that a low gravity indicates a large percentage of rubber, and a comparatively small amount of mineral matter (loading). It will readily be seen in the case of a porous shoddy, that this assumption is somewhat erroneous. A shoddy low in mineral matter must necessarily have a low gravity, but the reverse is only true if the shoddy is non-porous.

Apart from the question of porosity, it is quite impossible to estimate the rubber content of a shoddy from the gravity, in spite of the fact that many manufacturers, as already stated, use the gravity as the only criterion whereby the composition of a shoddy is judged. Litharge having a gravity of over 9, whiting somewhat more than 2, and most of the substitutes being floating, it will readily be seen that by employing these substances in various proportions the gravity of the shoddy can vary between wide limits, and the amount of rubber present remain absolutely constant. If we add to this the error liable to occur, owing to porosity, the doubtful value of the gravity test becomes apparent. In the case of a shoddy, porosity is liable to be a more serious drawback than in the case of mineral fillers, as regards its influence on the resulting compound. It is much more difficult to break up the pores in a shoddy than in a mineral filler, as the latter usually yields quite readily to the action of the mixing mill.

It is very desirable, therefore, to have a ready means of determining the porosity of a sample. From what has already been said it will be perceived that the porosity is really the ratio between the actual and the apparent specific gravities. The apparent specific gravity, always the lower of the two, is determined in the usual way by weighing the sample in air and in water. From these two weighings the volume is calculated, and subsequently the apparent gravity. For the determination of the actual gravity, the sample must be in as a fine state of subdivision as is possible. This can usually be accomplished by grinding the sample on the mill. If the sample resists this treatment, however, it must be ground by means of a grater or coarse file. A weighed sample of the finely ground product is then introduced into a specific gravity bottle and the latter almost filled with distilled water. Suction is then applied by means of an air-pump till all the enclosed air has been sucked out. The sample is now absolutely non-porous. Subsequently the bottle is completely filled with water and weighed. The porosity p is then expressed by the following formula:

$$p = \left\{ \frac{\text{actual specific gravity}}{\text{apparent specific gravity}} - 1 \right\}$$

For an absolutely non-porous sample, this would give $p = 0$.*

There is one inorganic filler, the gravity of which might, at first sight, legitimately vary. The filler referred to is lithopone. As is well known, lithopone is a mixture of barium sulphate (barytes) and zinc sulphide. The gravity of barium

*For further details regarding this determination, see C. O. Weber, "The Chemistry of India Rubber," p. 227.

sulphate being about 4.3, and that of zinc sulphide 3.8, it is conceivable that by varying the proportion of these two constituents, the resulting gravity of the lithopone could vary. In reality, this is not the case, because lithopone, although a mixture should have a perfectly definite and constant composition, consisting roughly of 70 per cent. barium sulphate and 30 per cent. zinc sulphide. Simply mixing these two chemicals in the proportions stated would not result in the brilliantly white product which we know as lithopone. This is prepared by adding a solution of barium sulphide to a solution of zinc sulphate. There is thereby produced zinc sulphide and barium sulphate, both of which are insoluble and precipitate out. If now any remaining barium sulphide or any remaining zinc sulphate (according to which was used in excess), is dissolved out by means of water, the remaining lithopone will always have the same composition. Accordingly its actual gravity is also constant.

I should not like to be interpreted from anything that has been said above, as being opposed to the employment of compounding ingredients in a fine state of subdivision. But I do wish to point out that a manufacturer who buys a mineral filler of apparently lower gravity, under the impression that its employment will make his compound of proportionately lower gravity, is deceiving himself.

THE FUTURE OF GERMAN COLONIAL RUBBER GROWING.

BASED on his recent visit to the German colonies in East Africa, noticed in the March issue of THE INDIA RUBBER WORLD (page 269), Dr. Eduard Marckwald, of Berlin, lately read an interesting paper before the German Agricultural Society, of which a reprint has come to hand. Having in his previous utterances dealt with the present conditions and prospects of rubber plantations in German East Africa, he has in the above-named paper taken up the broader question of the ultimate vitality of German rubber plantations in general.

Official statistics, quoted in the April issue of the INDIA RUBBER WORLD (page 324) showed the following results:

RUBBER EXPORTS FOR YEARS ENDING APRIL, 1910 AND 1911.

	1910.	1911.
Kamerun .....tons	1,518	1,962
German East Africa	474	744
Togo	137	135
German New Guinea	6	8
Total from German possessions...tons	2,135	2,849

KAMERUN AND TOGO.

These figures showing for 1911 a total of nearly 2,100 tons exported by Kamerun and Togo, as compared with about one-third that quantity from German East Africa, illustrate and confirm Dr. Marckwald's discrimination between conditions in the first named possessions and those in East Africa. To use his own words: "Labor conditions in Kamerun are relatively satisfactory, the wages being suitable, and the natives capable of undertaking complicated work. The cost of producing *Kickxia* (including freight to Hamburg and selling expenses there) amounts to less than 3 marks per kilo (33 cents per pound)."

Such a price, he adds, renders Kamerun practically able to compete in the world's markets, even if quotations materially recede. His own question he answers in the following terms: "The prospective vitality of Kamerun plantations can therefore be confidently asserted, with the proviso that the trees continue to yield and that they withstand repeated tappings."

With regard to Togo, Dr. Marckwald remarks that owing to the satisfactory labor conditions there prevailing, there is no reason to anticipate the non-success of plantations in that colony, as they are being developed in a favorable and systematic manner.

KICKXIA AND HEVEA IN KAMERUN.

The preponderance of *Kickxia* in Kamerun is indicated by the following official estimate of the trees in that colony at the end of April, 1911:

<i>Kickxia</i>	4,915,865
<i>Hevea</i>	786,270
<i>Manihot</i>	19,343
<i>Ficus</i>	16,686
<i>Castilloa</i>	2,584
Sundry varieties	3,500
Total	5,744,248

In connection with this estimate interest attaches to Dr. Marckwald's anticipation (based upon the climatic conditions existing), that although important yields from the later plantings of *Hevea* are not yet available, that tree, owing to its hardier and more reliable qualities, will gradually supplant *Kickxia*, notwithstanding the lower cost of production in the latter case.

GERMAN EAST AFRICA.

Conditions in German East Africa are, however, radically different from those existing in the other German colonies; all of which, with the exception of Southwest Africa, are more or less interested in rubber. According to Dr. Marckwald's observation, cultivation (not only of rubber) is carried on to an appreciable extent in East Africa by laborers, who are devoid of experience in plantation work, and even ignorant of ordinary agricultural operations. Hence there is no due preparation of the soil and no investigation as to whether the land to be planted is suitable for the purpose to which it is to be applied.

Among the points to which attention is called in the paper, are the more thorough preparation, fertilization and (where necessary) artificial irrigation of the soil, in addition to care in the choice of seeds. Planting trees too closely and at the wrong time is condemned by Dr. Marckwald, following up his previous remarks on those subjects; while the present system of tapping is likewise criticized, as well as the mode of packing.

TO WASH ALL EAST AFRICAN RUBBER IN EUROPE?

After dealing with the unfavorable conditions now attending the washing of rubber in German East Africa, which, it is remarked, are largely due to the present system of tapping, Dr. Marckwald suggests, until the question of tapping is settled in a satisfactory manner, the establishment in Germany of a rubber-washing plant, through which all East-African plantation rubber would have to pass before reaching the market. Such an establishment would be under official and permanent expert superintendence, and of a size capable of washing one ton per day, and would not cost more than the equivalent of six to seven thousand dollars. In this connection reference is made to the new machine of Werner & Pfeleiderer, in which there is scarcely any friction, with the result that the rubber is subjected to milder treatment than is now usual in the process of washing.

While referring to the partial progress in the direction of the needed reforms, made during his recent visit to German East Africa, Dr. Marckwald expresses the hope that the question of producing rubber, satisfactory both in quality and quantity, will be solved through serious work; thus facilitating the establishment of a standard quality of rubber, which matter has become a vital question for the German colonial possessions. Without cheaper and better products, he adds, the rubber plantations of German East Africa are doomed to hopeless failures.

A BOOK for rubber planters—Mr. Pearson's "What I Saw in the Tropics."

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

The First Annual Aero Show.

THE Aero Club of America, under whose auspices the First Annual Aero Show was held in the Grand Central Palace in New York City, from May 11 to 18, has every reason to be satisfied with the result of that exhibition. To be sure, the average citizen did not flock there as he would, for instance, to a moving picture show of Jack Johnson in action. To the average man, one aeroplane in the air is worth twenty on the floor; but still, the general attendance was very fair, and the special attendance—that is, the attendance of people specifically interested in aeronautics—was not only excellent, but highly appreciative. It is safe to say, that everybody directly or indirectly interested in this new branch of science visited the show, and derived a great deal of profit from his visit.

It was an exceedingly instructive exhibition and well worth a detailed description; but it does not lie within the province of this publication to treat it in its entirety, but rather in its relation to the rubber industry. There were four rubber exhibits—three of them coming from Akron; namely, those of the B. F. Goodrich Co., the Goodyear Tire & Rubber Co. and the Diamond Rubber Co., and one from outside—that of the Pennsylvania Rubber Co., of Jeannette, Pa.

Of these four exhibits, the most complete was that of the Goodyear Tire & Rubber Co. in charge of E. R. Preston. The

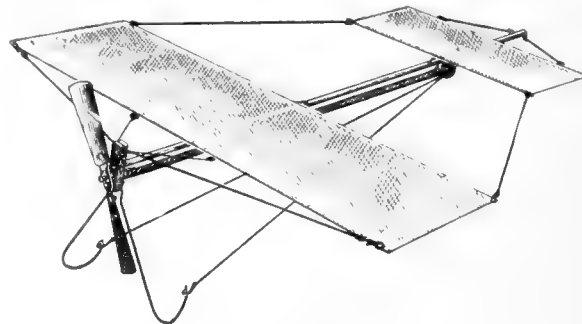


THE EXHIBIT OF GOODYEAR TIRE AND RUBBER CO.

pre-eminence of this exhibit was natural in view of the fact that the Goodyear Tire & Rubber Co. has been the pioneer in this line of endeavor. The Goodyear Company has been working on aeronautic supplies for the last two years, in conjunction with the leading aviators. As a result, it has made very creditable progress in four different lines—the manufacture of aeroplane fabrics, the manufacture of balloon fabrics, the making of special aeroplane tires and in the manufacture of shock-absorbers. It makes nearly a dozen different aeroplane fabrics, running in weight from four to seven ounces per square yard. Three prime considerations enter into the making of these fabrics; first—tightness, as obviously it would never do for the planes of a flying machine to be tight one day and loose the next; second—strength, which is a vital necessity, and third—lightness, which is eminently desirable. The balloon fabrics range in weight from $4\frac{1}{4}$ to 15 ounces per square yard. There is one essential difference between these two kinds of fabrics; in the aeroplane fabrics the rubber becomes virtually a part of the fabric, the two are

one, while the balloon fabric is made of various plies of alternating rubber and fabric.

The tires in use on aeroplanes must, of necessity, be exceedingly strong for their weight, as they have to withstand—particularly in the case of amateurs—very hard treatment. In an



TOY MONOPLANE.

amateur's hands an aeroplane not infrequently strikes the ground like a load of brick; a professional, on the other hand, generally—not always—alights on the earth without a jar.

The shock-absorbers, which are molded pieces of rubber from 14 to 18 inches long and about $1\frac{1}{2}$ inches in diameter, have to be made extremely strong to serve their purpose; they have an ultimate stretch of 228 per cent. Another interesting device for aeronauts, which is as yet in somewhat of an experimental stage, is a rubber life preserver which fits around the body like a jacket, coming down over the head and shoulders and buckling around the waist. Deflated it occupies very little room; in a moment's time, with a little exercise of the lungs it can be inflated and will keep a man afloat indefinitely.

The B. F. Goodrich Co. has but recently embarked on the manufacture of aeronautic supplies, but it had a creditable exhibit at the show, consisting of aeroplane fabrics and tires. In fabrics its specialty is "Lumina" aeroplane cloth, being so called because it is a light rubberized fabric covered with aluminum dust, which not only protects the rubber from the effect of the sun, but, inasmuch as it can be re-dusted at any time, keeps the cloth clean and presentable. In tires, its specialty is its double-tube 24 x 4-inch tire for biplanes. The Diamond Rubber Co. had a like exhibit of tires and fabrics, while the exhibit of the Pennsylvania Rubber Co. consisted exclusively of tires.

No description of the rubber exhibits at the show would be complete that did not include the display of toy aeroplanes run by the motive power of rubber bands, shown by F. A. O. Schwarz. He displayed these interesting toys in a great variety, ranging in price from 35c. to \$35. Their flight capacity runs anywhere from 200 to 1,000 feet. The method of operation is extremely simple. Each of these miniature aeroplanes is provided with a number of rubber bands running the entire length of the machine. By revolving the propeller, these bands are twisted. After they are twisted to the limit, the toy is given a toss in the air, and the untwisting of the bands revolves the propeller and carries the machine very rapidly through the air. It is a toy of French invention, but during the last two years it has become exceedingly popular in this country, thousands of them having been sold, and scores of them being in operation in the larger city parks and in the suburbs any pleasant Saturday afternoon.

Mr. T. Maldon Fitch, rubber and coffee planter on the Pama-noekan & Tjiassem Estates (Anglo-Dutch Plantations), Soehang, Java, has just been elected a Fellow of the Linnean Society of England.

New Brazilian Legislation.

AN examination of the text of the new Brazilian law as approved on January 5 by the President, shows it to be a carefully formulated measure, covering rubber in all stages of importance from the soil to the outgoing steamer. These provisions may be considered under the heads of those directly referring to rubber and those bearing upon conditions more or less accessory to its cultivation, by their influence upon the cost of production.

A—CULTIVATION.

That the high cost of producing rubber in Brazil is due to the excessive cost of living and transportation, has been pointed out by various leading authorities, and it is to these points, as well as to the direct promotion of rubber cultivation that the new legislation is directed. One of the principal objects in view being economy in cultivation, the exemptions provided by the first article of the bill (summarized in the March issue of THE INDIA RUBBER WORLD, page 266) form an appropriate introduction to its subsequent provisions. This clause provides for the free admission of all utensils and materials intended for the cultivation of *Hevea*, *Caucho*, *Maniçoba* and *Mangabeira*, as well as for the collection and preparation of rubber extracted from those trees. Rapidity of customs procedure is enjoined by the bill.

Another feature of the encouragement of rubber cultivation, under the new legislation, is the establishment, by Article 2, of prizes for successful planters, in two broad divisions—newly cultivated and replanted lands.

In the former class they are graduated as follows, per group of twelve hectares (30 acres):

	Milreis.
<i>Hevea</i>	2:500 = \$833 gold
<i>Caucho</i> or <i>Maniçoba</i>	1:500 = \$500 gold
<i>Mangabeira</i>	900 = \$300 gold

In the latter class they are graduated as follows, per group of twenty-five hectares (62½ acres):

	Milreis.
<i>Hevea</i>	2:000 = \$667 gold
<i>Caucho</i> or <i>Maniçoba</i>	1:000 = \$333 gold
<i>Mangabeira</i>	720 = \$240 gold

These prizes may be claimed one year before the first crop, upon verification of the ground having been fully improved and the trees properly treated. A yearly increase of 5 per cent., since period of planting, is added to in the value of the prizes where the planters can prove the parallel cultivation throughout their property, of plants of industrial or alimentary utility.

Recognizing the importance of the training and instruction of planters, provision is made upon that subject in Article 3.

The government is to establish at a point selected for the purpose, an experimental station, or camp of demonstration, for the cultivation of *Hevea* in the Territory of Acre, and in each of the States of Matto Grosso, Amazonas, Pará, Maranhão, Piauí and Bahia; as well as for the cultivation of *Maniçoba*, in conjunction with that of *Mangabeira*, in each of the States of Piauí, Ceará, Rio Grande do Norte or Pernambuco, Bahia, Minas Geraes, S. Paulo, Goyaz, Parana and Matto Grosso.

These stations will furnish gratuitously to all interested persons asking for them, selected seeds, with instruction as to the most practical and economical method of cultivation.

B—EXPORT DUTIES.

Relegated from its original position in the bill under old Article 4, the question of the modification of export duties is treated in a new article—12—in the following terms:

"The Executive Authority is empowered to enter into agreement with the States of Pará, Amazonas and Matto Grosso, with the object of attaining a yearly reduction of 10 per cent. up to the maximum limit of 50 per cent. of the present amount of export duties collected by the States upon the *Hevea* rubber produced in its territories, and exemption from all export duty for the term of twenty-five years, counting from the date of this law, of rubber of the same quality and origin collected from cultivated plantations."

"As soon as this agreement has been made, the Executive Authority will issue a decree, applying the reduction made by said States to the export duty collected on rubber from the Federal Territory of Acre, and conceding like exemption as to cultivated rubber."

C—RUBBER REFINING AND MANUFACTURE.

The above objects are provided for in new Article 4 under separate heads. A premium up to milreis 400:000 (\$130,000) will be awarded to the first *Hevea* refining plant which shall reduce the different qualities to a uniform and superior export type, and which shall be established in each of the cities of Balem (Pará) and Manaos. A premium equalling \$33,000 gold will be awarded the first plant for refining both *Maniçoba* and *Mangabeira* rubber, to be established in each of the States of Piauí, Ceará, Rio Grande do Norte, Pernambuco, Bahia, Minas Geraes and S. Paulo.

Encouragement is afforded for rubber manufacturing by a provision for a premium up to milreis 500:000 (\$160,000 gold) to the first plant for manufactures of rubber to be established in Manáos, Belem (Pará), Recife, Bahia and Rio de Janeiro. In order to be entitled to the favor specified in this article, it is necessary for the factory to have paid-up capital equalling four times the value of the premium.

D—TRANSPORT.

The above are the provisions directly bearing on the rubber industry. There are accessory conditions, which are dealt with in other articles providing for the new railways and improved river navigation necessary to facilitate and cheapen transport. Under Article 6 it is provided that:—

"In order to facilitate transports and to diminish cost of same in the Amazon Valley, the government will get executed within the shortest time possible the following improvements and supplementary measures:

1. Construction of narrow gauge railways along the Rivers Xingu, Tapajos and others, in Pará and Matto Grosso, and the Rivers Negro, Branco and others in Amazonas, and penetrating into the valleys washed by them; by public competition in accordance with the law of December 13, 1903, or at a rate per kilometer, according to the judgment of the Government and the difficulties presented by the region.

In case of the States of Pará and Amazonas having contracted for the construction of any of these lines. The Government, for the more rapid completion of the work, will grant them an increase of 15 contos per kilometer (\$8,000 mile).

2. Construction of a railway starting from a convenient point on the Madeira and Mamore line, near the mouth of the River Abrina, passing through Villa Rio Branco, and through a point between Senna Madureira and Caty; ending at Villa Thamaturgo, with a branch to the Peruvian frontier, through the valley of the River Purus.

The construction of this line will be in accordance with the regulations of the law No. 1,126 of December 13, 1903.

As soon as the first section of the trunk line is completed as far as Villa Rio Braneo the Government will establish

a Custom House at Porto Velho on the River Madeira, and will declare that port open to the commerce of friendly nations.

3. Construction of a railway starting from the port of Belem (Pará), and connected with the railway system at Pirapoa, State of Minas Geraes, and at Coroata, in the State of Maranhão; with the branches necessary to connect the initial or terminal points of navigation of the Rivers Araguayá, Tocantins, Parnahyba and S. Francisco.

This railway will be constructed under the regulations of the law of December 13, 1903, and the construction awarded by public competition.

4. The necessary works will be executed for rendering navigable at all seasons of the year for vessels of certain draught;—the River Negro, between Santa Isabel and Cucuhy; the River Branco, between the mouth and the fort of S. Joachim; the River Purus, from Hyutanahan to Senna Madureira, and the River Acre, from the mouth to Riosinho das Pedras.

The government can contract for the execution of the above works by means of public competition or independently of competition, with one or more suitable concerns, applying the regulations of the decree No. 6,368 of February 14, 1907.

Such are the plans for improved transportation by rail and river; materials and machinery for the improvement of navigation being free from import duties under Article 7.

Similar exemption will be conceded under Article 8, to concerns which, in public competition, will bind themselves to establish depots of coal at a point in the Amazon valley previously indicated, for the purpose of supplying coal to steamers and launches at prices approved by the Government.

E—CEREALS AND PROVISIONS.

Under Article 9 a comprehensive plan is outlined for increasing the available supply of provisions. It includes the leasing of two of the national farms for the cultivation of cereals and for the establishment of packing houses and factories of dairy products, mandioca flour, etc. It further provides for the direct colonization by the government of the national lands forming the S. Marcos farm, with native agriculturists and breeders of horses and cattle. The materials and machinery necessary for the establishment of these farms will be free of import duty. Premiums are offered for the laying out of pastures and farms, as well as the manufacture of packing house and cereal products.

A special exemption from import duties is made with respect to the material needed for establishing a fish curing and packing industry.

F—SANITATION.

The government, under Article 5, is to establish three hospital stations for immigrants at the Island of Flores, at Belem (Pará) and Manáos. Local hospitals under skilled medical supervision are to be opened in the midst of the small agricultural colonies, for the free treatment of patients, the sale of medicines and the diffusion of information on sanitary and medical questions.

G—GENERAL PROVISIONS.

Among the general provisions of the law is one under Article 11, for triennial expositions at Rio de Janeiro, for the encouragement of the rubber industry.

The government is empowered under Article 13 to introduce in the Territory of Acre the same protective measures, which may be adopted in the respective States already named. The adjustment of Acre land titles is provided for in Article 10.

H—EFFECTS OF DROUGHT.

By a previous decree of December 28, 1911, plans were authorized for combating the effects of drought, by observations as to rainfall and other measures.

The carrying out of these measures, it will be noticed, is partly in conjunction with the action of certain States, while a large number of them are directly Federal provisions.

PARA RUBBER EXPORT DUTIES.

AN inquiry addressed to the American consul at Pará relative to the various duties levied on rubber exports elicited the following reply:

"INDIA RUBBER WORLD—Gentlemen: Replying to your request dated April 9, inquiring as to the manner of arriving at the "Pauta" or export tax on rubber in this State. I have to inform you that this duty is of two kinds, Federal and State, the first duty being payable to the local treasurer of the National customs and the second to the State Treasury, both having offices in this city.

"*Federal Pauta.* This applies to all rubber the product of the Acre region and is by law a straight 23 per cent. of the average of the price obtained on sales for each week. In order to arrive at this average price, which is the real 'Pauta,' every broker (licensed official) is required to furnish each Saturday to the chief of the federal customs a sworn statement, giving a detailed list of all his rubber sales, with prices of each grade specified. From these lists of sales submitted, the average price for each grade is obtained and these average prices will be the 'Pauta' or official value, per kilo, for rubber for the coming week. These facts are published in the daily papers each Sunday and govern for that and the succeeding six days.

"*State Pauta.* This duty is collected only upon the rubber, the product of this State. The same mode of procedure prevails as regards the gathering of statistics, except that the local State officials address their inquiries to the receivers and shippers and the average of the prices reported for the different grades, becomes the State 'Pauta.'

"The State duty is made up as follows:

Duty	22.000%
Entrance fee	1.000%
Assessment for the purpose of erecting an exchange, 38¢ .....	.375%
Municipal tax, 2½% on the duty, (22¢) .....	.550%
Total	23.925%

To this 23.925 per cent. must be added a further charge of 2 reis per kilo wharfage. This notice is usually posted and published each Monday morning and governs for that week. The percentage of Federal tax remains the same, but the other varies slightly in different States.

"GEO. H. PICKERELL, American Consul."

RUBBER PLANTING IN BRAZIL.

Brazilian public opinion in the rubber states, to judge from the report of the commissioners appointed by the Minister of Agriculture, who have been investigating conditions in the Amazon valley, is in favor of a rational and intelligent course of action with regard to rubber planting. The "Brazilian Review," in commenting upon this report, takes the view that it comes a little late in the day, adding that unless the cost of living is reduced, it is difficult to see how Brazil will ever be able to compete on a plantation basis with the East. The journal named has for many years been raising a warning note, which was unheeded, but which is now shown to have been warranted.

THE GENERAL RUBBER CO. OF BRAZIL.

The following circular has been sent out by Gordon & Co., of Manáos and Pará, to that part of the trade interested in the Brazilian crude rubber market:

"Manáos, April 1, 1912.—We have the honor to advise you that the General Rubber Company of Brazil, properly authorized by the Decree No. 9296 of January 3, 1912, of the Government of the Republic, to operate in this country, on this date assumed all the responsibility of the assets and liabilities of the commercial firm which in this city and that of Pará has operated under the style of Gordon & Co., continuing the respective businesses without interruption.—General Rubber Company of Brazil, W. S. Gordon."

The New Edition of "Hevea Brasiliensis."

WITH the object of covering the many important developments of the rubber industry within the last four years, the fourth edition of Herbert Wright's work on "Pará Rubber,"* has been considerably expanded, as compared with the third edition (1908). The text of the 21 chapters (containing 300 pages) of the earlier volume has been supplemented by new matter, and now takes up almost 400 pages; a dozen additional chapters having likewise been added in treating new subjects or developments of special importance; the whole work now containing 530 pages.

The arrangement of Mr. Wright's work conducts the reader in a natural sequence through the various phases of the rubber question. First come the history and botany of the Pará rubber tree; then its various stages up to its giving its yield of rubber. Afterwards follow the subjects of preparation, washing, handling, etc.; then the physical and chemical properties of rubber, testing, vulcanization, etc.; and finally the questions of estimated costs of planting and production.

HISTORY AND PROSPECTS.

In the opening chapter is an interesting table of the various species of *Hevea*, with their geographical and botanical origins, in addition to statistical returns of Brazilian shipments, as well as a discussion of the recommendations of the Manáos Rubber Congress of 1910, and of the measures of encouragement proposed by the Brazilian government for the development of rubber growing. The present and prospective conditions of Asiatic plantations are then fully dealt with, as well as the outturns of the larger companies. The question as to whether Eastern plantations will in time produce three times the Amazon crop is fully discussed, but the position is summed up as follows by Mr. Wright: "The possibility of securing a crop from plantations treble the amount now annually obtained from Brazil may seem optimistic, nay, even ridiculous; but it may have to be faced before 1920."

The chapter on the value of Pará rubber deals with facts which have now passed into the history of the trade, but a record of which adds to the completeness of the work. In a new chapter Mr. Wright deals with the history of rubber plantations in all parts of the world, concluding with an estimate showing the world's planted acreage in 1912 as 1,085,000 acres; the "million acre" line having thus been admittedly passed.

HEVEA RUBBER.

One pertinent remark of Mr. Wright indicates the prospects of *Hevea*: "There are already indications that *Hevea Brasiliensis* will outlive many other species, and it may therefore be confidently anticipated that the countries growing this plant will ultimately predominate as rubber producers."

BOTANICAL SOURCES OF RUBBER.

While the first two chapters of Mr. Wright's work are of general interest to all those connected, in any way, with the rubber trade and industry, those whose interests lie in various special branches will find their particular subjects handled in a detailed and thoroughly comprehensive manner in the succeeding chapters. Thus Chapter III, which has been increased from 8 to 19 pages, keeps pace with the latest discoveries of the rubber botanists of all countries.

GROWING RUBBER.

Growing rubber has two broad divisions: cultivation and tapping, to one of which most items of information are referable.

*"Hevea Brasiliensis or Pará Rubber" (4th edition). By Herbert Wright, Ass. R. C. S., F. L. S., London. 1912. Maclaren & Sons, Ltd. [Cloth 8vo, 530 pages; price 15s. 6d.]

Mr. Wright's closer subdivisions add to the perspicuity of the work and facilitate reference to its detailed features.

Planters and plantation owners will be specially interested in the five chapters dealing with various phases of cultivation:

- IV. Climatic conditions for *Hevea Brasiliensis*;
- V. (New.) Rate of growth of *Hevea Brasiliensis*;
- VI. Planting operations and methods of cultivation;
- VII. (New.) Catch and inter-crops;
- VIII. Soils and Manuring.

The three chapters on this branch of the subject in the third edition have been enlarged, while two new chapters are added.

The importance attached to this branch of the subject is indicated by the fact that Chapters IV to VIII take up in the aggregate 114 pages, more than one-fifth of the entire work. The new chapters are of special interest; the rate of growth of *Hevea* in various countries being a necessary element of international comparisons; leading up appropriately to the following chapter which deals with the cultivation of *Hevea* in various countries and the means adopted to maintain or increase the regular development of all parts of the tree. In a new chapter (VII) the questions of catch and inter-crops are discussed from a practical point of view. From a financial standpoint Mr. Wright remarks:

"Why I am inclined to urge the interplanting of more or less permanent products, is that I believe that long before 1920, we shall in rubber plantation companies be far more dependent upon inter-crops than we are today. . . . Within seven years it is quite possible that the plantation crop of rubber will be treble the amount we have been in the habit of receiving yearly from Brazil. This means that plantation rubber may, possibly only for a limited period, be sold at or below cost of production. . . . It is because I believe this so thoroughly that I recommend the cultivation of inter-crops in association with *Hevea*; it is a measure of protection."

Finally the question of soils and manuring is dealt with, the space devoted to that subject in 1908 having been increased by one-half. Experiences in various countries are quoted in detail; the question being suggested for consideration of the possible beneficial effect of manuring upon the rubber-producing capacity of the tree.

TAPPING AND YIELDS.

Up to this point the planter or his financial supporter has been investing money in rubber cultivation. Now comes the question of tapping and the yield resulting therefrom, which is the ultimate object of all the previous operations. The various points affecting the details of tapping; how, when, and where to tap; and the effects of tapping—are treated in practical and lucid manner, in amplification of the edition of 1908; two new chapters of current interest being introduced: "How Notable Estates Are Being Tapped," and "Tapping and Yields in the Amazon Region."

The all-important question of yields is now discussed in much greater detail than in the 1908 edition. The general chapter on "Yields of Pará Rubber" has been partly retained, while separate chapters now deal specially with the yields of rubber in the Amazon region; Malaya; Ceylon and Southern India; Dutch East Indies, Borneo, Africa, etc.

PREPARATION.

Nature having now done its share of the work, it now remains for human ingenuity to complete it and to render the product marketable. On the various phases of preparation, including "The Physical and Chemical Properties of Latex"; "Production of Rubber from Latex"; "Purification of Rubber and Washing Machines"; and "Drying of Rubber," the former chapters are ex-

panded, while new chapters on the "Theory of Coagulation" and "The Smoking of Rubber" deal with those questions in detail. In connection with the first-named subject, an interesting point is discussed as to the influence of coagulants on the strength of rubber, reference being made to the experiments on that subject of various well-known experts. In a new chapter the smoking of rubber is discussed, including the methods used in that process and its influence upon the strength of rubber. The forms, branding, packing and handling of plantation rubber are treated in another new and interesting chapter.

SEEDS, DISEASES AND PESTS.

These subjects are handled at increased length in continuation of the former edition, with special reference to *Hevea* trees.

ESTIMATED COST OF PLANTING.

In dealing with this subject, the division of the original chapter into others upon "Cost of Production on Estates," and "Estimated Costs of Planting," affords an opportunity of reproducing various interesting detailed estimates of the cost of planting *Hevea* in Malaya, Ceylon and elsewhere.

CHEMICAL AND PHYSICAL CHARACTERISTICS OF PLANTATION RUBBER.

This broad subject and the kindred question of testing, are handled in amplified form in continuation of the former edition and likewise in a new chapter devoted to the character and comparative value of plantation rubber. Among other points treated are those of the complaints frequently made of the lack of uniformity in that kind of rubber, and the factors causing such variability.

MANUFACTURE AND COMPOSITION OF RUBBER ARTICLES.

At this point rubber enters into a new stage, that of its use in manufacture, subject to new conditions. In this connection the various subjects of masticating and mixing, calendering, vulcanization, as well as the heat and cold cures are dealt with, as also the question of the direct use of latex.

SYNTHETIC, RECLAIMED AND ARTIFICIAL RUBBER.

The various forms in which it has been attempted to furnish practicable substitutes for rubber are concisely handled.

NO IMPORTANT DISUSE OF RUBBER.

In his concluding remarks, Mr. Wright emphasizes the fact that notwithstanding the substitution of other materials for rubber in connection with certain purposes, great advances have been made in the number of purposes for which rubber can be used; while an increased demand has been established in other directions in which that product has long been employed. In his opinion the disuse of rubber will not be of any consequence so long as the demand in old applications continues to grow at such rapid rates.

Mr. Wright's work shows a remarkable grasp of the many details with which it deals, while his individual opinions, as expressed on the various subjects treated, impart a marked personal interest to the contents of the volume.

PREMIUMS FOR RUBBER PLANTING IN ECUADOR.

By a law enacted in 1904, the government of Ecuador was authorized to pay a premium equaling five cents for each rubber tree planted in the national territory. Through an executive decree of December 21, 1911, the conditions attached to these premiums are specified. They are available for plantations with more than 500 trees, at an elevation of more than 1,640 feet above the level of the sea, with an average temperature not less than 72 degrees Fahrenheit. The separate trees must be from 13 to 20 feet apart, so that there are not more than 250 to an acre; they must have attained the age of five years and have an average diameter of 16 to 18 inches at a height of 40 inches from the ground. Two experts, appointed by the government, will investigate the merits of the claims presented.

A POPULAR WEEKLY ON RUBBER MATTERS.

The "Saturday Evening Post," in a recent issue, contains the following paragraph relative to the United States Rubber Co. and the rubber outlook in general:

There are under rubber cultivation in the Far East some 875,000 acres, and the United States Rubber Company expects to obtain from its own plantations 25 per cent. of its supply within three years and 75 per cent. within five years. The acreage aforementioned is likely practically to double the world's product of about 75,000 tons within six years. What the world's consumption of rubber will be six years from now is beyond present power of conjecture. That it will increase is certain; and so, likewise, may the area devoted to the growing of rubber trees be enlarged. Until lately the bulk of the rubber has come from the wild rubber trees of Brazil, but the practicability of the development of orchards privately set out and cultivated has now been fully demonstrated. To what extent the manufacturers of rubber goods will divide the benefits of cheaper rubber with the consumers of their goods is past saying. The dividend plans of the United States Rubber Company attest expectation of enlarged profits for the manufacturer as the consequence of cheaper and more stable prices for crude rubber. Stability of prices for crude rubber will obviously lessen the capital required to carry a supply of this commodity. Enlarged production by rival interests should diminish likelihood of corners being formed in the article, although this alone may not positively guarantee immunity from that danger. The United States Rubber Company has its own company engaged in the cultivation of rubber, and by supplying itself from that source the expense at least of several middlemen will be avoided, for the crude rubber industry is peculiarly subject to an excess of middlemen's profits."

PORTABLE WATER BAGS.

A PORTABLE and very easily handled water bag to be carried on horse or mule is shown in the accompanying picture. These bags are double, made of 12-ounce canvas, waterproof, about 28



PORTABLE WATER BAGS TO BE CARRIED ON HORSE BACK.

inches deep, and are closed with a flap that can be held down when being transported. They are joined together with a saddle portion that goes over the back of the animal. The capacity of this double bag is 20 gallons. It has been found very convenient in the army service.

An American consular officer in the Far East reports that a company in his district wishes to make connection with American firms desirous of purchasing rubber in that region, and is prepared to enter into contracts with firms for the supply of this product.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

BUSINESS seems to hang fire somewhat, because of the backward season. That is the reason given by many, but the makers of rubber clothing have no complaints to make of the weather. The demand for automobile tires has somewhat slackened down, most of the consumers' demands being supplied, and a temporary lull is expected, until the duplicate demand comes later. This, however, is not the universal opinion, for some of the tire people report business on the increase, rather than otherwise. Mechanical goods continue in comparatively moderate demand.

Jacoby & Co., has already developed an excellent business for his product. He has secured the services of two English experts in this line, and he claims that the substitute turned out is equal, or superior, to any English or American material of this nature. The office is at 79 Milk street, and the factory at South Boston, and the demand has so increased that he is considering seriously adding to the factory capacity. The house is represented in New York City by Hermann Weber.

* * *

Last month mention was made of the award for decorations of the Children's Room in the new Forsyth Dental Infirmary. The



FRIEZE IN CHILDREN'S ROOM IN THE FORSYTH DENTAL INFIRMARY.

and the tendency to purchase supplies from hand to mouth still prevails. Rubber footwear has sold well up to the first of this month, on account of the extra five per cent. discount offered.

* * *

A gentleman connected with the trade, who has just returned from a business trip in Canada, states that every line of rubber manufacture there is extremely active, and the whole trade most optimistic, as regards both present and future business.

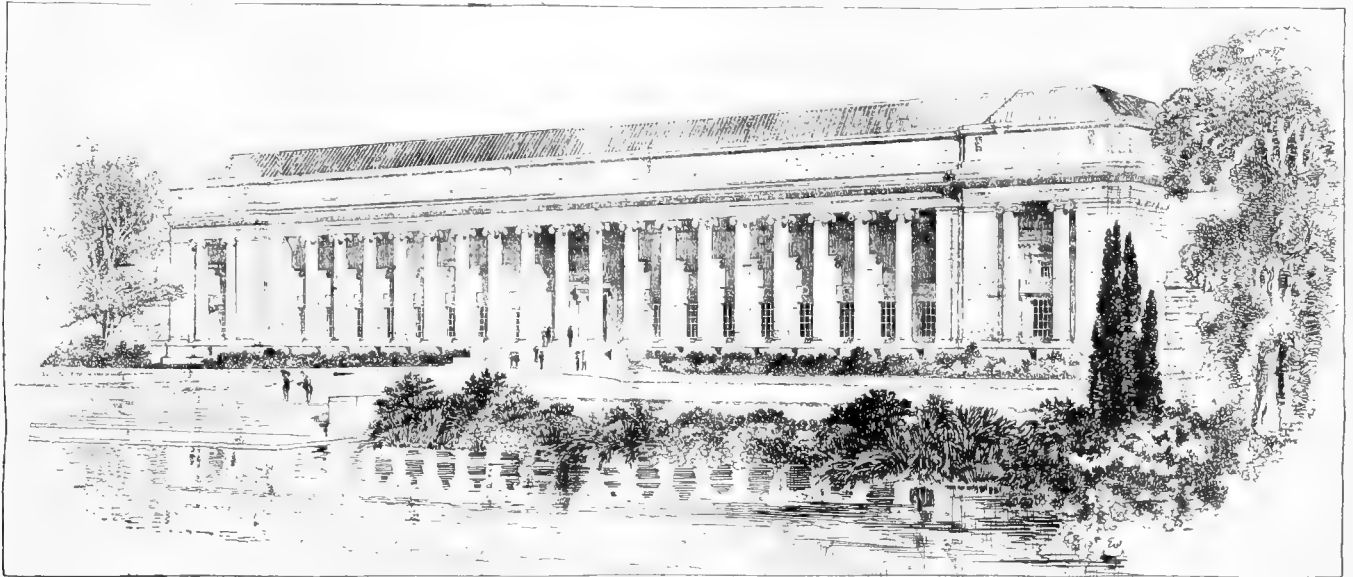
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George A. Alden & Co. have taken up the selling of deresinated pontianac, prepared by the Acushnet Process Co., of New Bedford,

first prize was awarded to Mrs. Florence Lyle Young, whose subjects were "Roxbury Giant," "Hiawatha" and "Rip Van Winkle." The last-mentioned design is shown here. It is in three sections. The first shows the hero playing with the children. The descriptive panel reads "Rip Van Winkle was a favorite with the children." The middle panel shows him nearly asleep with the dwarf coming over the hill. The legend is "Rip Van Winkle hears a voice calling him." The largest section shows "Rip Van Winkle's return to the village." The decorations are to be done in tile, and are eminently fitted to adorn the room where children will assemble and wait for treatment at this great charity made possible by the Forsyth family.

* * *

Mention has been made in previous letters of the magnificent



ROBERT D. EVANS MEMORIAL ADDITION TO THE BOSTON MUSEUM OF FINE ARTS.

ford, Massachusetts, and are placing large amounts of this valuable gum with manufacturers who find it most valuable from every practicable standpoint.

* * *

Ernest Jacoby, well known in the rubber trade, is now manufacturing a rubber substitute, and under the name of Ernest

gift of Mrs. Robert Dawson Evans to the Boston Museum of Fine Arts as a memorial to her late husband. In this issue we are pleased to show the architect's drawing of this prospective gift. It shows a noble building in the Greek-Ionic treatment, with a row of 22 fluted columns reaching from the paved terrace to the roof of the structure, which will be situated facing

the widest part of the Fenway Basin, which will reflect the classic colonnade and add beauty to this portion of Boston's park system.

The museum, as opened three years ago, was far from fulfilling the plans of the management, but was completed as far as funds on hand warranted. Pictures are now installed in space which, in the ultimate development of the whole building, was not intended for picture galleries. This memorial building will embody all the features and requisites which years of experiment and investigation have proven desirable.

The new building is to be 300 feet long and 90 feet wide. The principal exhibition space will be on the main floor, the ground floor to be used for secondary collections, study rooms and administration offices. The principal entrance is from the Fenway, and opens immediately upon a monumental staircase, leading to a landing on which will be placed a tablet in memory of Robert Dawson Evans, who was one of the trustees of the museum and a special lover of paintings. The stairway here divides into two semi-circular stairways, bringing the visitor to a hall or lobby, in the center of the building, from which lead entrances to picture galleries. First come small rooms in which will be hung works of the early masters. Then come other galleries chronologically arranged, where works of the different schools of painting will be grouped together.

The building will be provided with a special ventilating system, which will not only supply fresh air at all times, but this air will be humidified to avoid danger of too great dryness, a trouble noted in many galleries which are heated by steam or other means.

The design, which is the work of Guy Lowell, is peculiarly well handled, and will result in a most pleasing vista in this beautiful parkway.

* * *

A handsome new cruising boat was anchored in Boston harbor the middle of last month, which was seen and admired by some of the rubber men. It is the property of Chas J. Davol, of the Davol Rubber Co., who is exceedingly proud of his new craft, in which he will cruise the waters of Narragansett Bay, and go to and return from business to Wildacres Farm in Kingston. The cruiser is equipped with two six-cylinder gasoline engines, and develops a speed of 15 miles an hour.

* * *

The Hub Rubber Co. has been formed in this city for the purpose of pushing the sale of Boston (Hub) rubbers up to the full capacity of the two great mills of the company in Malden. George H. Mayo, of this city, is president and Joseph S. Capen is selling agent. Both these gentlemen are well known to the readers of THE INDIA RUBBER WORLD. The Boston office is at 174 Congress street, and the New York branch at 60 Thomas street, the latter in charge of John J. Cassidy, formerly of the Merchants' Rubber Co. The company will inaugurate an extensive and thorough advertising campaign to make known the value and style of Boston (Hub) and Bay State rubbers.

* * *

E. M. Freeman & Co. opened an office at 294 Washington street, Boston, early in the year for the sale of crude rubber. They are in daily receipt of offerings from representative New York concerns, and are becoming well known among the manufacturers of New England.

THE B & R RUBBER CO.'S OLDEST EMPLOYEE.

George W. Whitman, a master mechanic of the B & R Rubber Co., has been with that company ever since it opened its works in North Brookfield, Massachusetts, nearly 23 years ago. In point of service he is the veteran of the factory's force. He has had charge of the installation of the company's machinery, and is very expert in this work.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

THE first two weeks in May were bad ones for the rubber trade in Chicago. Instead of bringing forth flowers they brought cold, damp rains which dampened the business of dealers in both tires and garden hose. On all sides were heard complaints that business was "pretty good" but that the weather had kept it from being a lot better. Still even the weather has its compensations, for as one dealer put it, "when garden hose is not needed, rubber boots and shoes are."

* * *

President W. P. Cowell, of the Cowell Rubber Co., has now taken up his residence in Chicago. The company's store in this city was opened last August and since that time business has increased to such an extent that Mr. Cowell decided to remove to this city from Pittsburgh. The business in the Smoky City shows a very healthy condition, however, and Mr. Cowell makes frequent trips between the two stores.

The officials of the company report that they are greatly encouraged by the increase in trade on their new style, high-grade portable tubings for lamps, stoves and general use. They use a special rubber called their "Sandow," with a variety of braided coverings, a decided improvement over the old style wire and glue tubing.

* *

Frank D. Mayer, general manager of the Essenkay Co., 2120 Michigan avenue, recently received a telegram from Otto Hook, who wagered \$1,000 on his ability to travel from Chicago to San Francisco in his car with Essenkay-equipped tires without one puncture or blowout. The message read: "Reno, Nev.—I am now starting on my last lap. Will win without a doubt. Have not had a single puncture or blowout so far. The roads have been terrible—absolutely beyond power of description. Went 250 miles before coming into Reno over trails filled with sharp pointed rocks and fragments of quartz, where no other automobile has ever traveled." Mr. Mayer expressed little surprise and said that tire trouble in transcontinental touring has become a thing of the past since the introduction of "Essenkay."

* * *

Mr. C. A. Eldridge, of the Duck Brand Co., reports business as "booming."

* * *

Chicago motorists who will attend the events at the Indianapolis speedway are delighted with a comprehensive route book which is being issued by The B. F. Goodrich Co., makers of the famous Goodrich tires. The map shows all the principal cities and intermediate points between Buffalo and St. Louis and Chicago and Louisville. The routes are very fully and carefully described, with mileages clearly indicated.

The Goodrich Co. has a large series of other route books, some already issued and others nearing completion, and their touring bureau is always open for tourists planning trips into unfamiliar regions. Crews are now in various parts of the United States gathering data for guides covering 20,000 miles of road from Maine to Oregon, and from Canada to Mexico.

* * *

The Chicago Rubber Clothing Co. has removed its headquarters into the new North American building, State and Monroe streets, one block from the "busiest corner" in the city.

* * *

"Although every-day service is what we build for, rather than for contest work, it is to be noted that Ajax tires have done good work in speed and endurance competitions when casually selected as equipment," says J. C. Matlack, secretary of the Ajax-Grieb Rubber Co. "The choice must be casual as

we have no racing types. The Maxwell that won the light car race at Santa Monica used Ajax tires and got through with a minimum of tire trouble. Ajax shoes were on the Maxwell cars that took the main prizes in the most recent Glidden tour and on a perfect score Columbia, too."

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

MERGER OF GOODRICH AND DIAMOND RUBBER COMPANIES.

THE officers of The B. F. Goodrich Co. and The Diamond Rubber Co. have completed an arrangement whereby these two companies are to be consolidated as one plant under the name of The B. F. Goodrich Co., with a capitalization of \$90,000,000. This is done for the purpose of economizing the cost and sales expenses and to give additional financial prestige.

The following is the notice sent to the stockholders of The B. F. Goodrich Co.:

AKRON, Ohio, May 18, 1912.

TO THE STOCKHOLDERS OF THE B. F. GOODRICH CO., AN OHIO CORPORATION:

You are hereby notified that the contract unanimously adopted by the stockholders of The B. F. Goodrich Co., an Ohio corporation, at their meeting held on Monday, March 27, 1912, has been fully performed, and all of the property and assets of every nature and description of the Ohio corporation have been conveyed and transferred in accordance with said contract to The B. F. Goodrich Co., a New York corporation, and the agreed amounts of stock of the latter company, both preferred and common, have been issued to The B. F. Goodrich Co., an Ohio corporation, and (except such amount of said stock as has been sold to the Bankers pursuant to the terms of said agreement) will be held by it for the period mentioned in said contract before being distributed to its stockholders.

In the meantime, the board of directors of the said New York corporation, on which board are all the officials and a majority of the directors of the Ohio company, have unanimously authorized (subject to the approval of the stockholders of the New York corporation) a contract dated May 8, 1912, providing for the purchase by the New York corporation of all the property, assets and good will of the Diamond Rubber Co., of Akron, Ohio (save certain reserved moneys), in consideration of the issuing by the New York corporation, in full payment therefor, of \$15,000,000 of its increase preferred stock, and \$30,000,000 of its increase common stock, and a certain other contract dated the same day between the said New York corporation and The Diamond Rubber Co., Goldman, Sachs & Co., Lehman Brothers, Kleinwort Sons & Co. and L. A. Hardy, and certain notes, letters, memoranda and other papers supplemental to said contracts have been delivered. These contracts and other papers supplemental thereto, copies of which are on file and may be seen at the New York and Akron offices of the New York corporation, will be submitted to the stockholders of the New York corporation at a meeting thereof duly called and to be held on June 3, 1912, at the New York office of the company, at which meeting resolutions will be offered authorizing and providing for the increase of the capital stock (both preferred and common) of the New York corporation to the amounts required to perform said contract of purchase. The officers and directors of the Ohio company heartily approve and recommend said contract.

All present issued preferred and common shares of the New York corporation (saving only that issued to the bankers and their nominees under contract bearing date March 16, 1912, and twenty shares subscribed and paid for by the incorporators of said corporation) stand of record in the name of The B. F. Goodrich Co., an Ohio corporation, and will be voted at said meeting by said company. But before voting said shares of stock of the New York company in favor of said contract for the purchase of the property and assets of said The Diamond Rubber Co., and for the increase of the capital stock of the New York corporation The B. F. Goodrich Co. (of Ohio) and its officers desire the approval of their action by the company's stockholders of record at the time of the closing of its books on April 6, 1912, for the reason that the shares of said preferred and common stock held by the company are at the expiration of the time limited in the agreement of March 16, 1912, to be distributed among the stockholders of the Ohio corporation.

You are, therefore, requested to execute and mail to C. B. Raymond, secretary of The B. F. Goodrich Co., an Ohio cor-

poration, at Akron, Ohio, the enclosed consent, in the enclosed stamped envelope.

As time is of the essence of the contract with The Diamond Co., it is extremely important that the enclosed consent should be signed and returned immediately and, therefore, your prompt attention to this request is desired.

Very truly yours,

THE B. F. GOODRICH CO., An Ohio Corporation.

B. G. WORK, President.

C. B. RAYMOND, Secretary.

The following is the notice sent to the stockholders of The Diamond Rubber Co.:

May 16, 1912.

TO THE STOCKHOLDERS OF THE DIAMOND RUBBER CO.:

Notice is hereby given that a special meeting of the stockholders of The Diamond Rubber Co. will be held at the office of the company, in Akron, Ohio, on Tuesday, May 27, 1912, at twelve o'clock noon. Said meeting is called for the purpose of (1) taking into consideration and determining whether to adopt a certain agreement, dated as of May 8, 1912, authorized by the board of directors subject to the action of the stockholders of the company, providing for the sale and transfer to The B. F. Goodrich Co. (a corporation of the State of New York) of the entire property, assets, rights, business and good-will of The Diamond Rubber Co. (except only certain sums of money which, pursuant to said agreement, are to be or may be retained by this company) subject, however, to all of the liabilities and other obligations of The Diamond Rubber Co. existing at the time of such transfer all whereof are to be assumed by The B. F. Goodrich Co. and the payment by The B. F. Goodrich Co. to this company, in consideration of such transfer, of one hundred and fifty thousand (150,000) shares of the aggregate par value of fifteen million dollars (\$15,000,000) of its seven per cent. cumulative preferred stock, and three hundred thousand (300,000) shares of the aggregate par value of thirty million dollars (\$30,000,000) of its common stock; said agreement providing, also, that The B. F. Goodrich Co., at the time of such transfer and delivery of stock, shall be the owner of all of its present property and assets (except such as may be alienated in the usual course of business) and shall not have outstanding in excess of one hundred and fifty thousand (150,000) shares (\$15,000,000 par value) of preferred stock and three hundred thousand (300,000) shares (\$30,000,000 par value) of common stock, in addition to the stock to be delivered to this company; (2) taking into consideration and determining whether to adopt another certain agreement, likewise dated as of May 8, 1912, and authorized by the board of directors subject to the action of the stockholders of the company, providing for the purchase from this company by Goldman, Sachs & Co., Lehman Brothers and Kleinwort Sons & Co. (herein called the "Bankers"), of seventy-five thousand (75,000) shares of the preferred stock of The B. F. Goodrich Co. and thirty thousand (30,000) shares of the common stock of said company, if received by this company under said agreement with The B. F. Goodrich Co., for the sum of seven million five hundred thousand dollars (\$7,500,000) in cash, and the amount of accrued dividends, at the rate of 7 per cent. per annum, upon such 75,000 shares of preferred stock, and, in case of the consummation of said purchase by the bankers, securing to F. A. Hardy an option to repurchase at par and accrued dividends, at the rate of 7 per cent. per annum, all or any part of twenty-five thousand (25,000) shares of said preferred stock and also a certain contingent interest in a portion of the profits, if any, realized by a syndicate to be organized by said Bankers; (3) taking into consideration and determining whether to approve and adopt certain notices, letters, memoranda and other papers supplemental to said above-mentioned agreements, relating to proceedings thereunder or with respect thereto and providing, among other things, that from and after May 15, 1912, said agreements shall be unconditional and absolute agreements, subject only to action thereon by the stockholders of said companies respectively and to the rights to terminate the same reserved to the parties thereto respectively; and (4), if said agreements above mentioned shall be adopted at said Stockholders' Meeting, taking any further action that may be necessary or appropriate to effect the intent and purposes of said agreements. Said agreement between this company and said Bankers provides, among other things, that none of the stock of The B. F. Goodrich Co., received by this company or by its stockholders, shall be sold, distributed or otherwise disposed of, except with the consent of the Bankers, so long as the disposition of a like portion of the existing stock of The B. F. Goodrich Co. is restrained by a similar agreement heretofore entered into between the same Bankers and the B. F. Goodrich Co. (of Ohio). The maximum period during which this limitation can be operative is six months from May 11, 1912.

A copy of the certificate of incorporation of The B. F. Goodrich Co. (of New York), which contains provisions defining the rights and priorities of the preferred stock of that company, and copies of all of said above-mentioned agreements and other papers may be examined by the stockholders at the office of this company at any appropriate time before or during the progress of the stockholders' meeting.

The stock transfer books of the company have been closed by order of the board of directors and will remain closed until after the adjournment of the stockholders' meeting hereby called when they will be reopened on a day to be fixed by the board of directors. If the above-mentioned agreements shall be adopted by the stockholders, the stock transfer books when reopened will remain open for a period to be fixed by the board of directors, and after the expiration of said period will again be closed, probably permanently. Stockholders of record will be notified of the action taken at the stockholders' meeting and of the date for the opening and (if the same are again to be closed) the date for the closing of said books. By order of the board of directors,

F. A. HARDY, *President*.

W. B. MILLER, *Secretary*.

May 16, 1912.

TO THE STOCKHOLDERS OF THE DIAMOND RUBBER CO.:

In explanation of the accompanying notice of a special meeting of the stockholders of The Diamond Rubber Co., to be held at the office of the company, in Akron, at 12 o'clock noon, on May 27, 1912 (to which your attention is earnestly directed), the members of the board of directors desire to communicate the following information to the stockholders of the company:

The notice of the stockholders' meeting refers particularly to two agreements, viz.: (1) an agreement between this company and The B. F. Goodrich Co. for the sale to the latter of the property and good-will of this company (except certain reserved moneys), in consideration of \$15,000,000 par value, of the seven per cent. cumulative preferred stock and \$30,000,000. par value, of the common stock of said company and (2) another agreement between this company and the bankers named in said notice (Goldman, Sachs & Co., Lehman Brothers and Kleinwort Sons & Co.) for the sale to the Bankers of 75,000 shares of the preferred stock and 30,000 shares of the common stock of The B. F. Goodrich Co., if acquired by this company under said first-mentioned agreement for \$7,500,000 in cash and the amount of the dividends accrued upon said 75,000 shares of preferred stock. The complete performance of the two agreements mentioned should leave in the hands of this company for ultimate distribution to stockholders at least \$8,000,000 of cash; \$7,500,000. par value, of the seven per cent. cumulative preferred stock of The B. F. Goodrich Co. (of New York) and \$27,000,000 par value of the common stock of the last-mentioned company. This preferred stock will be entitled to cumulative dividends at the rate of seven per cent. per annum from April 1, 1912, unless the transfer to the Goodrich Company is postponed beyond July 1, 1912, in which case the board of directors of this company will declare the usual dividend of three and one-half per cent. upon the existing stock of this company, payable as of July 1, 1912, and the preferred stock of the Goodrich company to be received by the stockholders of this company will be entitled to dividends only from the last-mentioned date. The preferred stock will be subject to call and redemption at 125 and accumulated dividends, and, in any case of liquidation, to priority in the distribution of the company's assets to the same extent. The certificate of incorporation of The B. F. Goodrich Co. contains various provisions designed to safeguard the interests of holders of preferred stock. It also provides in substance that until the holders of two-thirds in interest of each class of stock shall otherwise direct, said company shall pay such amount of corporate, franchise and property taxes in the State of Ohio as may be required by the laws of that State, in order to render the stock of the company exempt from taxes in Ohio.

Previously to the negotiation of the two above-mentioned agreements to which this company is a party, which are in substance parts of a single transaction, the bankers had purchased for \$7,800,000 cash, 78,000 shares of the preferred stock and 30,000 shares of the common stock of The B. F. Goodrich Co., which are part of the already issued stock of that company, and the agreement between the bankers and The B. F. Goodrich Co. (of Ohio) by which that purchase was made provided against the sale or other disposition of any of the remaining shares of the outstanding stock of The Goodrich Co., without the consent of the bankers, during a certain period (which expires on November 11, 1912) or prior to an earlier date 90 days subsequent to the termination of a syndicate organized by the bankers to purchase from them a portion of said stock. In order to maintain the integrity of the agreement last referred to, the bankers insisted that a corresponding provision should be

inserted in the agreement between them and this company. It is anticipated that the bankers will consent to the actual distribution of the stock of The B. F. Goodrich Co. to be received by this company well in advance of the expiration of the period covered by the agreement with them.

By said agreement with the bankers, F. A. Hardy, the president of this company, has secured, for the pro rata benefit of all holders of the present stock of this company desiring to join therein, the right to purchase from the bankers, referred to in the notice, at par and accrued dividends at the rate of seven per cent. per annum, all or any part of 25,000 shares of the preferred stock of The B. F. Goodrich Co. Upon adoption of said agreements by the stockholders of the company at their meeting to be held May 27, 1912, if the same be adopted, all of the stockholders will be notified of the fact and proper forms will be sent them to be used in subscribing for their respective shares of these 25,000 shares of said preferred stock. By the same agreement, Mr. Hardy also secures a certain, comparatively small, contingent interest in a portion of the profits of a syndicate to be organized by the bankers. Any benefit thus derived is to be turned over to, or devoted to the use of this company or otherwise for the advantage of the company or its stockholders, as the board of directors may determine.

Neither the proposed sale of the company's property and business nor the proposed resale to the bankers of a portion of the preferred stock of The B. F. Goodrich Co. involves any commission or compensation of any kind to any of the officers or directors of the company personally, and no officer or director of this Company has any interest in said transaction, other than the same interest which every other stockholder has in his proper proportion.

The adoption by the stockholders of the agreements mentioned in the notice should result in the distribution or payment to the holders of the present stock of this company of \$80 per share in cash, \$75 per share in the seven per cent cumulative preferred stock of The B. F. Goodrich Co., and \$270 per share in the common stock of said company. It is expected that, almost immediately after the transfer of this company's property, such cash payment will be made and assignable, but non-negotiable certificates of interest (evidencing the stockholders' right, when the agreement with the bankers shall cease to restrain the same, to receive the above-mentioned preferred and common stock) will be delivered, upon surrender, by the stockholders, respectively, of the stock certificates evidencing their several holdings of stock in this company.

If the agreements be adopted and are carried out, the principal executive officers of this company will become officers of The B. F. Goodrich Co. and will be elected to its board of directors, upon which the stockholders of this company will also have such further representation as their holdings of stock may equitably entitle them to enjoy.

The legality of the transactions provided for in the agreement and of the plan outlined in this letter has been approved by counsel, and said agreements and plan are unanimously approved by the undersigned, who are all of the directors of the company.

F. A. HARDY, A. H. MARKS, W. B. MILLER, A. H. NOAH, R. C. LAKE, G. E. NORWOOD, O. C. BARBER.

PROPOSED OFFICERS OF THE NEW GOODRICH COMPANY.

The proposed officers of the new Goodrich company are as follows: F. A. Hardy, of Chicago, former president of The Diamond Rubber Co., will be chairman of the board of directors; F. H. Mason, now vice-president of the Goodrich company, will be vice-chairman of the board of directors; B. G. Work, president of the Goodrich company, will be president of the combined companies; A. H. Marks, vice-president and general manager of the Diamond company, will hold the same position with the new company; E. C. Shaw, general manager of the works of the Goodrich company, will be second vice-president and manager of the works; H. E. Raymond, secretary and sales manager of the present Goodrich company, will hold the same position with the new company; W. B. Miller, secretary of The Diamond Rubber Co., will be second vice-president and assistant sales manager; C. B. Raymond, secretary of the Goodrich company, will hold the same position with the new company. W. A. Means, treasurer of the Goodrich company will hold the same position with the new company.

This latter position was offered to A. H. Noah, of The Diamond Rubber Co., but he declined the offer and gave as his reason that he desired to retire from active work of the company, but was prevailed upon to serve in an advisory capacity for at least one year. These men, together with O. C. Barber and C. C. Goodrich, will form the board of directors of the new company. It is claimed that those who have held official positions with each company and who are not provided for in the new list of officers and directors, will be taken care of and given

positions of trust and responsibility in the new combination.

According to a statement made by B. G. Work, there are to be no radical changes in the management of the Goodrich company after the Diamond company is taken over. "At present, no change is contemplated in the selling organization. This applies to both the Diamond and Goodrich plants. We will still maintain the branches of both companies as in the past, but eventually they will be amalgamated in each city into one. The name 'Diamond' will continue as before, as a trade mark, and also that of 'Goodrich.' Both Goodrich and Diamond tires will be marketed as in the past. The Goodrich will not make any special change in reorganization, but its marketing force will be doubled. The office force of the Diamond company will be retained."

The stockholders, at their meeting on May 27, ratified the action of the directors.

GOODYEAR TIRE AND RUBBER COMPANY.

The stockholders of The Goodyear Tire and Rubber Co. will vote on May 28 to increase the company's capital stock from five million to ten million common, and from one million to five million preferred. C. W. Seiberling, vice-president of this company, states that the five million preferred will be issued at once. Instead of being redeemable at 105 as is the present preferred, the new stock will be redeemable at 120 at the company's option after January 1, 1915, the holders of the present one million preferred having agreed to exchange their stock, share for share, for new preferred. The balance of the new preferred, four million, will be offered to common stockholders at par. The new plan is wholly separate from the transaction completed some weeks ago, in which the common stockholders received 100 per cent. stock dividend and rights to take \$340,000 treasury common stock at par.

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

IMPORTANT happenings have followed one another in rapid succession in the rubber trade in Rhode Island during the past month. The Revere Rubber Co. lost more than \$500,000 worth of tires in a fire, the Phillips Insulated Wire Co. applied for permission to increase its capitalization by \$500,000, and the reorganization of the Consumers' Rubber Co. and the reopening of its plant were finally effected.

* * *

The Revere Rubber Co., which is the Providence plant of the United States Tire Co., lost practically every tire that it had finished up to the time of the beginning of the blaze on May 7. Two firemen were killed during the conflagration.

The company is already rushing preparations for a new storehouse opposite its plant on Eagle street, Providence. Plans for a big brick building will be accepted soon. It will be connected with the manufacturing buildings by a bridge over the street, permission for which was granted at the last session of the State Legislature. It is understood that this building will be made as nearly fireproof as it is possible to have a structure of the kind, and that its capacity will be much larger than the old plant of the Monahan Vehicle Co., which, up to the time of the fire, was used for the storage of tires.

The plant has been running day and night for a long time, so it will be practically impossible to increase the output.

The new storehouse will be five stories 300 x 75 feet. In the meantime several wooden sheds are being erected on the Valley street side of the plant for storage purposes, and many other improvements are being made to various buildings.

* * *

An increase of \$500,000 in the capitalization of the Phillips Insulated Wire Co. was followed almost immediately, early in the month, by the commencement of work on a new brick office building west of the plant on Freeman street, Pawtucket, Rhode Island. This structure will be one story and a basement, and of artistic design.

When the office building has been finished workmen will start on the destruction of a large wooden building fronting on Central avenue on the north side of the plant. With this structure out of the way, the company, which already owns the land, all of which has a frontage on the India Point Branch of the New York,

New Haven & Hartford Railroad, will have several acres on which it will erect a large addition to its plant during the summer.

The removal of the offices from the main building of the plant and the lengthening of it to Central avenue will give the company several thousand feet of additional floor space for manufacturing purposes—something that has been needed for a long time as a result of increasing business.

The reorganization of the Consumers' Rubber Co., Bristol, was completed in the early part of May. A new Rhode Island company of the same name was organized to take over the property of the old, which went into the hands of a receiver in December of last year. The new concern is controlled by the Walpole Rubber Co., which intends to manufacture rubber shoes.

The officers are: President, F. J. Gleason; vice-president, Terrence McCarty; treasurer, A. T. Baldwin; secretary, P. W. Gardner. Mr. Gleason is vice-president of the Walpole Rubber Co.; A. T. Baldwin is its treasurer, and Mr. Gardner is its attorney. Terrence McCarty was head of the old Consumers' company and will be retained as manager of the new. His system of management is considered excellent, but the faults of his financial system will be removed by the application of the system in vogue at the Walpole plant.

The plan of reorganization was worked out by Percy W. Gardner, representing creditors whose claims totaled \$300,000, and J. F. Dunbar, a well-known Boston rubber man. It was accepted by the receiver, Robert S. Emerson, and later ratified by the Superior Court.

Fully 90 per cent. of the creditors came in under the agreement, agreeing to take stock in the new concern in payment of their claims. Those who did not agree were allowed 17 cents on the dollar by the court, and the cash for this payment was provided by the Walpole Rubber Co.

The plant was closed on April 30 for stock-taking and was reopened on May 13, with about 300 hands employed. The inventory was complete and the machinery was started in good condition, with enough orders on hand to insure operations in full for an indefinite period.

* * *

The American Electrical Works, at Phillipsdale, Rhode Island, began to run overtime about May 1 until 8:30 in the evening. This was the first time in many months that business warranted such long shifts. The arrangement has been continued. The chief product of this concern is insulated wire.

* * *

A financial statement issued by the Woonsocket Rubber Co. early in May showed that the total assets on March 30 were \$5,243,063 against \$5,700,970 a year ago at that time. The detailed statement will be found in another column.

* * *

George F. Kelley, of Providence, son of Arthur L. Kelley, president of the Mechanical Fabric Co., was married at St. Bartholomew's Church, New York, Saturday, May 4. A reception was held in the ballroom of the Hotel Gotham following the ceremony. Mr. and Mrs. Kelley will reside in Providence.

* * *

Charles J. Davol, president and treasurer of the Davol Rubber Co., has just become the owner of a new 90-foot power cruiser type of yacht which will be one of the handsomest craft of the kind on Narragansett Bay. The design carries out his ideas. She is equipped with bulkheads and other improvements which are almost as complete as in an ocean liner.

* * *

Numerous alterations are being made to the hose room of the National India Rubber Co.'s plant, Bristol, for the purpose of transforming it into a foundry for the manufacture of copper wire. The room, which is 200 feet x 40 feet, will be ready for the new work in about a month.

The reconstruction consists of building foundation piers for

supports for the increased weight which the new machinery is expected to put upon the floors of the structure. It is expected that other buildings which have been empty since the removal of some departments to Cleveland will also be utilized for part of the wire making equipment.

THE RUBBER TRADE IN SAN FRANCISCO.

By a Resident Correspondent

BUSINESS during the past month has been fairly good with all of the rubber merchants in San Francisco. Owing to the dry weather in the early part of the season, there was quite a demand for garden hose, which induced considerable activity in this branch of the business. Since then there has been plenty of rain to insure big crops and a prosperous year for the farmers, and this seems to have started a better business in all lines.

* * *

The San Francisco headquarters of the Seamless Rubber Co. will be moved to larger quarters at 216 Market street. E. Milburn, the manager, states that increasing business has made it imperative to make a change, and a location further down town is deemed to be better adaptable to the lines they have to sell. Mr. Milburn has a very full and complete stock of druggists' sundries, and reports that business has been steadily increasing during the past few months.

* * *

Austin Kanzee has opened attractive sales offices at 541 Golden Gate avenue. Here he will act as selling agent for the Seamless Rubber Co.'s tires and Kantleek inner tubes.

* * *

Clyde S. Thompson has succeeded James A. Braden as advertising manager of the Diamond Rubber Co., the latter resigning because of poor health.

* * *

Stanley W. Main and Ben. W. Copeland have formed a partnership for the purpose of carrying on the retail business formerly conducted by the W. D. Newerf Rubber Co., in this city. Their specialty will be the automobile tire business. In order to start in his new line of business, Mr. Main resigned his position with the Goodyear Tire & Rubber Co. He has been adjuster with this company since its factory branch was first started in this city.

* * *

Fred H. Bowerman, who was formerly connected with the Firestone Tire and Rubber Co., has joined the Goodyear Tire and Rubber Co., of California. He has taken a responsible position, and has his headquarters with the San Francisco branch.

* * *

Considerable interest is shown by all of the merchants here in the merger of The B. F. Goodrich Co. with the Diamond Rubber Co.; but it is not believed that it will make any change in the conduct of the business on this coast for some time to come. The merger is considered as a thoroughly natural move.

* * *

W. A. Daggett, manager of the Eureka Fire Hose Manufacturing Co., has returned from a three weeks' trip to the Northwestern territory. While away he selected three representatives for the company, who will be located in the larger cities of the Northwest, to look after the company's interests in that territory.

He believes that there is a tendency towards improved business conditions all through the Pacific coast territory.

* * *

J. E. French, manager of the Pacific coast branch of the Pennsylvania Rubber Co., is now visiting the company's Los Angeles branch. This firm reports a good active automobile tire business.

* * *

W. J. Gorham, of the Gorham-Revere Rubber Co., has left for the Northwest to pay a visit to the company's branches in

that territory. This firm reports an improved business in all lines, although, as before, the business in automobile tires is taking the lead.

* * *

The new auxiliary high pressure fire protection system is nearly completed in San Francisco. This consists of reservoirs containing vast amounts of water, and situated on the tops of the highest nearby hills. These are supplemented by big cisterns scattered about throughout the city. In case a big fire should break out now the fire department will not be helpless as it was in 1906, owing to the bursting of the regular water mains. The city will shortly be in the market for a large quantity of 3½-inch hose for the new high pressure system. They will also advertise for big bids on 1½-inch and 2¾-inch hose. Owing to the fact that the city is now permitting the manufacturers to bid under their own specifications, it is believed that there will be some lively bidding this time.

* * *

J. B. Lippincott, representing the interests of the Boston Woven Hose and Rubber Co. in Southern California, with headquarters in Los Angeles, and Herbert K. Selby, who represents the interests of this company in Oregon, Washington and Idaho, with headquarters in Portland, have both been the guests of Mr. Joseph V. Selby in San Francisco for a week past. Mr. Joseph V. Selby is the Pacific coast manager for the company, with headquarters in San Francisco.

THE RUBBER TRADE IN TRENTON.

By a Resident Correspondent.

One of the 23 huge vulcanizers in the plant of the Empire Rubber Manufacturing Co., Trenton, New Jersey, recently exploded from some cause that could not be ascertained. Though the vulcanizer was 22 feet in length, 6 feet in diameter, and weighed 14 tons, it was thrown a distance of 20 feet, while the door, weighing between 3 and 4 tons, was thrown a distance of 40 feet in the opposite direction. The machine was tested a short time previous and was supposed to stand 135 pounds of steam. At the time of the explosion the gauge showed 110 pounds.

The boiler inspectors and insurance adjusters who made an investigation declared the accident was unavoidable. The damage amounted to about \$3,000, fully covered by insurance. The explosion did not interfere with the operation of the plant or the filling of orders in any way.

* * *

General C. Edward Murray, treasurer of the Empire Rubber Manufacturing Co. and Empire Tire Co., who is a candidate for district delegate from the Fourth Congressional district of New Jersey, has been making a most vigorous campaign in the interests of President Taft. The fight has been the most bitter in this section of any primary battle in years.

* * *

Increasing demand for the product of the textile mills of Morris & Co., at Groveville, has necessitated the enlargement of the company's force of operatives, and day and night shifts are now employed in the plant. Two hundred operatives are engaged in manufacturing cotton duck, etc. In the past sixteen months the sales have increased 200 per cent.

* * *

The Thermoid Rubber Co. is filling many orders for tires, and shipments are being made to Europe and Australia in addition to the trade centers in the United States and Canada.

* * *

The United and Globe Rubber Mfg. Co. reports a large business in air brake hose couplings. This concern is now supplying a large number of the railroads of the South with couplings.

The United States Rubber Co.'s Annual Report.

THE twentieth annual report of the United States Rubber Co. was dated and distributed on May 6, two weeks ahead of the annual meeting, which occurred on May 21, at New Brunswick, New Jersey. The reports of the president and treasurer are given below.

REPORT OF PRESIDENT COLT.

TO THE STOCKHOLDERS OF THE UNITED STATES RUBBER CO.:—
Notwithstanding certain unsettled trade conditions, the result of the operations of the company and of its subsidiary companies during the past year, both in the volume of sales and profits, has been satisfactory.

The report of the treasurer appended hereto gives the Consolidated General Balance Sheet and the Consolidated Income Statement of the United States Rubber Co., for the fiscal year ending March 31, 1912.

This Consolidated Statement does not include the operations of the Rubber Goods Manufacturing Co., the Canadian Consolidated Rubber Co., Limited, or the General Rubber Co., there being stock of each of said companies not owned by the United States Rubber Co. This statement therefore includes only the dividends derived from the United States Rubber Co.'s stock holdings in those companies. The share of the undivided earnings of those companies for the year, applicable to the stock interests of this company, is computed to be \$1,335,024.39.

VOLUME OF BUSINESS.

The volume of business of the United States Rubber Co. proper for the year was \$36,775,947.58 as against \$40,888,724.25 the previous year. This volume of business, however, is confined largely to rubber footwear. The tire and mechanical business of the company appears chiefly in the operations of the Rubber Goods Manufacturing Co., whose sales the past year amounted to \$34,587,269.15. The sales of the Canadian company for the year were \$5,418,681.49. The selling prices in each case were lower than in the previous year.

PROFITS.

The net profits for the year ending March 31, 1912, were \$5,376,306.86 as against \$4,349,825.73 the previous year, the greater part of this increase coming from the larger dividends received from our holdings of stock in the Rubber Goods company. Adding to these profits the share of the undivided profits of the Rubber Goods, Canadian and General Rubber companies appertaining to this company's stock interest therein amounting to \$1,335,024.39, the total gain for the year would be \$6,711,331.25, as against \$5,661,991.84 last year.

As heretofore, all interest paid by the company upon both its funded debt and its floating debt is deducted before the net profit is shown.

CRUDE RUBBER INVESTMENTS IN FAR EAST.

During the past year the course of the crude rubber market has been steadier than it was in the two previous years, the extreme prices for fine Pará being \$1.43 on April 1, 1911, and 94 cents in June, 1911. The price April 1, 1912, was \$1.18.

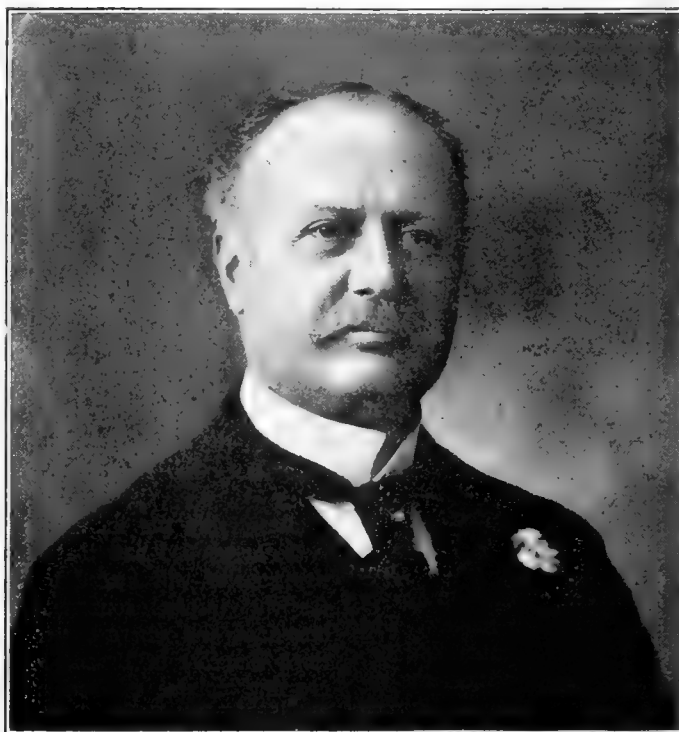
The development of our plantations in the Far East has progressed favorably. Last year we purchased about 80,000 acres in the Island of Sumatra. Much of it had been planted in tobacco. In place thereof we proceeded to plant rubber trees. Having the advantage of a large tract of cleared land and a good working organization, we have now over 20,000 acres planted with more than 2,500,000 rubber trees, being already the largest rubber plantation in the world. We have over 10,000 coolies at work, and the enterprise is proceeding most satisfactorily. We have good reason to believe that the complete success of this undertaking is assured and that with the increasing development of that plantation we will have secured a very large portion of our future requirements of crude rubber at a minimum cost.

EXPANSION OF BUSINESS.

During the past few years the business of the company has expanded out of proportion to the increase in its capitalization and the outlook is for still greater business expansion in the future. This is true especially of the automobile and other tire industry, of which the United States Rubber Co. in conjunction

with the United States Tire Co. is the world's largest single manufacturer and distributor of tires, notwithstanding its proportion of the entire tire business of the country is only about 25 per cent. To meet this continuous growth of business, to keep pace with the times and to be always at the highest point of development with respect to securing our supplies of crude rubber as well with respect to manufacturing and distribution, your president hopes that the directors in the near future will consider the adoption of some comprehensive plan whereby additional funds may be available as required. The rubber manufacturing business is an expanding business and the United States Rubber Co. has to meet aggressive competition in all its lines of goods. Other large manufacturers have recently increased their capitalization materially and the increasing competition renders it all the more important that our company shall provide for further capital in order that it may continue to maintain its position in the rubber trade.

As an illustration of the close competition that we are



COLONEL SAMUEL P. COLT.
[President United States Rubber Co.]

obliged to meet, it may be mentioned that for some years past the net profits of the company have been less than 10 per cent. upon its net sales. The policy of the company has been to strive to do a large volume of business at a reasonably low percentage of profit.

REVERE-CANADIAN SYNDICATE.

December 31, 1911, ended the period of twenty-five months during which, as reported to the stockholders in 1910, the Revere-Canadian Syndicate (of which your president was member and manager), was entitled to the earnings of the Revere Rubber Co. up to \$700,000, and to one-half the earnings in excess of \$700,000. These earnings were found to amount in the aggregate to \$762,578.21, of which under the terms of the agreement \$731,289.10, has been paid to the syndicate. The earnings of the Revere company in the year 1911 would have been larger but for the interruption in its manufacturing and its general business, due to the transfer of machinery and its manufacturing of tires to a second factory, then in the course of enlargement. Now that this factory is finished and the Revere company has in operation two factories, each specializing in its work, it is expected that the net earnings will be increased. Such earnings from January 1, 1912, will go in their entirety to augment the earnings of the United States Rubber Co.

PROFIT SHARING PLAN.

In 1904 this company adopted a plan of specially interesting employes in the success of the company through a stock option, which within its limits worked successfully. But for some time past your directors have been elaborating a new and more comprehensive plan for the further development of the interest, loyalty and efficiency of the many officials and salaried men in its service and in that of its subsidiary companies. The directors concluded to accomplish this by giving those thus in its service a special motive for acquiring and retaining for years an interest in the company's stock, so as to make them substantially partners in the enterprise. For this purpose the company acquired in the market a number of shares of its common stock at \$45 per share, which it is now offering to them at the same figure, although the market price at present is somewhat higher. The subscriptions are to be paid for in instalments of not less than \$4 per share per month. The offer is limited to those receiving \$1,300 per annum and upwards, on the idea that they will best be able to meet the required payments without taking an undue financial burden upon themselves. In order to make the privilege of subscribing at \$45 per share still more attractive, and also to make it the more probable that the subscribers will retain their stock and so for years continue their interest in the company's welfare, the company proposes to give them a cash payment of \$3 per share for each of the coming five years, provided the subscribers retain their stock during that period and obtain a certificate at the end of each year that their services have been satisfactory to the company.

Furthermore in order to make the payments on the subscriptions the less burdensome to the subscribers, the company will distribute a certain profit sharing fund among the subscribers. At any time before full payment any subscriber may cancel his subscription. In such case all he has paid, together with interest at five per centum per annum, will be refunded. In the case of the death of a subscriber during the five years, his family will receive the same benefit he would have received under these plans had he lived. Any forfeitures caused by unsatisfactory service or by termination of service or by cancellation will enure to the benefit of the other subscribers.

If the plan works out successfully, it is hoped that in each succeeding year a similar offer will be made—the price of such future stock subscriptions, however, to be determined partly

by the market price of the stock and other conditions prevailing at the time. It is believed that enthusiastic and highly interested work and prolongation of service will make substantially for the welfare of all concerned.

CONDITION OF PROPERTIES.

The various operating mills and equipment of the United States Rubber Co. and its subsidiary companies—have been maintained in the highest degree of efficiency, additions being constructed where required, the most modern machinery installed and all kept in the best of repair.

NEW OFFICE BUILDING.

The new twenty story office building of the United States Rubber Co., on the corner of Broadway and Fifty-eighth street, New York, is nearing completion and will be ready for occupancy at an early day. A portion has already been rented to tenants. The first floor and two basements of the building will be used exclusively by the United States Tire Co. for its growing business, and the seven upper floors will be occupied for the general offices of the United States Rubber Co. and its subsidiaries.

RESUMPTION OF DIVIDENDS ON COMMON STOCK.

Last October your directors became satisfied that they were warranted in then resuming dividends upon the common stock of the company and a one per cent. dividend thereon for the quarter year was accordingly declared. Such dividends have since been continued quarterly.

CONCLUSION.

It is a source of great gratification to the management of the company that all of its securities should now be on a dividend paying basis.

Advances have been made in the efficiency of our organization during the year and, although there is much yet to be accomplished and notwithstanding that as in the past there will doubtless arise in the future obstacles to be overcome, we feel that the general condition of our company was never more satisfactory nor its future outlook more encouraging than it is today.

Considering the increasing variety of uses to which rubber is being applied and that it seems practically certain that entire success will attend the cultivation of the rubber tree in the vast tropical countries of the east, where cheap labor is abundant, and where the cost of production is only about one-third the cost in Brazil, we look forward to a constantly increasing volume of business and steadily growing prosperity for the United States Rubber Co. Respectfully submitted,

SAMUEL P. COLT, *President.*

TREASURER'S REPORT.

UNITED STATES RUBBER CO. AND SUBSIDIARY COMPANIES.

[Not including Assets or Liabilities of Rubber Goods Mfg. Co. and certain other Companies owned in part by U. S. R. Co.]

CONSOLIDATED GENERAL BALANCE SHEET, MARCH 31, 1912.

ASSETS.

Property and plants (including shares of R. G. M. Co., and Canadian Consolidated Rubber Co., Ltd.)	\$87,453,928.25
Inventories, manufactured goods and materials	\$21,754,653.86
Cash	4,848,466.12
Bills and loans receivable.....	1,133,412.53
Accounts receivable.....	13,464,959.27
Stock owned in General Rubber Co..	3,333,300.00
Securities, including stock and bonds of U. S. R. Co. held by subsidiary companies	4,189,087.57
Miscellaneous assets.....	344,644.63
Total assets.....	\$136,522,452.23

LIABILITIES.

Capital stock, first preferred.....	40,000,000.00	
Capital stock, second preferred.....	10,000,000.00	
Capital stock, common.....	25,000,000.00	75,000,000.00
<hr/>		
Ten-year 6 per cent. collateral trust sinking fund gold bonds*.....	\$18,500,000.00	
Less bonds in treasury.....	500,000.00	\$18,000,000.00
<hr/>		
Bonds of a subsidiary company.....		970,000.00
Loans and notes payable.....	9,667,063.45	
Merchandise accounts payable.....	2,049,623.77	
Accrued interest, taxes, etc.....	489,036.02	
Due General Rubber Co.....	7,394,919.31	19,600,642.55
<hr/>		
Reserve for dividends.....		1,200,000.00
Reserve for redemption of bonds and depreciation of plants.....		570,583.90
Fixed surpluses (subsidiary companies).....		12,005,495.89
Surplus.....		9,175,729.89
<hr/>		
Total liabilities.....		\$136,522,452.23

The contingent liabilities for certain guarantees, which are offset by corresponding contingent assets, are not included.

*\$1,500,000.00 of the original issue of \$20,000,000.00 bonds have been cancelled under Sinking Fund provision.

The Reserve for Contingencies, amounting to \$500,000.00, shown in the Consolidated Balance Sheet of March 31, 1911, was used for reduction in value of Manufactured Goods for which purpose it was set up.

CONSOLIDATED INCOME STATEMENT FOR YEAR ENDING MARCH 31, 1912.

Net sales, boots and shoes and miscellaneous.....	\$36,775,947.58	
Cost of goods sold.....	29,925,336.56	
<hr/>		
Manufacturing profits.....	\$6,850,611.02	
Freight, taxes, insurance, general and selling expenses.....	2,315,225.11	
<hr/>		
Operating profits.....	\$4,535,385.91	
Other income (net), including dividends received on stock of certain other companies owned by U. S. R. Co.....	2,691,780.75	
<hr/>		
Total income.....	\$7,227,166.66	
Less:		
Interest on bonds and borrowed money.....	\$1,369,437.20	
Interest allowed customers for Pre-payments.....	421,329.33	1,790,766.53
<hr/>		
Net income.....	\$5,436,400.13	
Additions to surplus.....	75,318.84	
<hr/>		
	\$5,511,718.97	
Deductions for bad debts, etc.....	135,412.11	
<hr/>		
Net profits.....	\$5,376,306.86	
Dividends.....	4,550,000.00	
<hr/>		
Surplus for period.....	\$826,306.86	
Surplus April 1, 1911.....	8,349,423.03	
<hr/>		
Surplus March 31, 1912.....	\$9,175,729.89	

Respectfully submitted,

JAMES B. FORD, *Treasurer.*

The certificate of audit of the company's accounts, signed by Haskens & Sells, certified accountants, accompanies the foregoing statements.

BUSINESS OF THE COMPANY.

The following table showing the amount of net profits of the United States Rubber Co. and the amounts disbursed in dividends since the organization of the company, has been compiled from the printed reports of the successive treasurers of the corporation:

YEAR ENDING—	Net Profits.	Dividends.
March 31, 1893.....	} [Not Published.]	
March 31, 1894.....		
March 31, 1895.....	\$2,716,370.00	\$2,056,190.00
March 31, 1896.....	2,339,790.60	2,056,190.00
March 31, 1897.....	1,999,611.34	1,552,040.00
March 31, 1898.....	2,070,750.41	1,164,030.00
March 31, 1899.....	3,226,513.46	1,882,040.00
March 31, 1900.....	3,007,887.54	2,828,680.00
March 31, 1901.....	62,605.57	705,765.00
March 31, 1902.....	deficit	none
March 31, 1903.....	1,594,908.16	none
March 31, 1904.....	1,575,641.29	none
March 31, 1905.....	3,761,922.63	1,882,040.00
March 31, 1906.....	3,881,270.23	2,846,092.00
March 31, 1907.....	4,590,382.72	3,485,956.00
March 31, 1908.....	3,553,556.14	3,495,448.00
March 31, 1909.....	4,507,655.39	3,498,540.00
March 31, 1910.....	5,535,163.15	3,574,205.00
March 31, 1911.....	4,349,825.73	3,800,000.00
March 31, 1912.....	5,376,306.86	4,550,000.00

THE ANNUAL ELECTION.

One new director was added to the board of directors, namely, Theodore N. Vail, making twenty-one directors, as follows:

Walter S. Ballou,	Henry L. Hotchkiss,
E. C. Benedict,	Arthur L. Kelley,
Anthony N. Brady,	Lester Leland,
Samuel P. Colt,	D. Lorne McGibbon,
Harry E. Converse,	Edward R. Rice,
James Deshler,	Homer E. Sawyer,
James B. Ford,	Frederick M. Shepard
J. Howard Ford,	William H. Truesdale,
Frank S. Hastings,	Theodore N. Vail,
Francis L. Hine,	John D. Vermeule,
Elisha S. Williams.	

At a meeting of the board of directors of the United States Rubber Company for organization and other business, held May 23, the following officers and executive committee were duly elected for the ensuing year:

OFFICERS.

Samuel P. Colt, <i>president.</i>
James B. Ford, <i>vice-president and treasurer.</i>
Lester Leland, <i>second vice-president.</i>
Samuel Norris, <i>secretary.</i>
W. G. Parsons, <i>assistant treasurer.</i>
John D. Carberry, <i>assistant secretary.</i>

EXECUTIVE COMMITTEE.

Samuel P. Colt, James B. Ford, Lester Leland, Walter S. Ballou, Anthony N. Brady, Elisha S. Williams, Homer E. Sawyer.

PRESIDENT COLT'S ADDRESS AT THE ANNUAL MEETING.

At the annual meeting of the stockholders of the United States Rubber Co., held in New Brunswick, New Jersey, May 21, 1912, President Samuel P. Colt delivered the following address.

TO THE STOCKHOLDERS OF THE UNITED STATES RUBBER CO.:

Since the issuance of the president's annual report, my suggestion, that the rapid expansion of the business of the company would soon require further financial provision, has been confirmed by the unexpectedly sudden development of large and combined competition which imposes upon your officers a duty of vigilant and active effort to maintain and extend your business. To this end, considerably increased financial provision is desirable without delay, and I take this earliest opportunity of asking your consideration and advice as to the following plan which the board of directors recommends:

FIRST: That the total authorized capital stock of the company, now fully issued to the extent of \$75,000,000 be increased to the total amount of \$120,000,000, to be divided into \$40,000,000 common stock and \$80,000,000 preferred stock.

SECOND: That out of this additional \$15,000,000 common stock and \$30,000,000 preferred stock, provision be made substantially as follows:

(1) A common stock dividend of \$5,000,000 or 20 per cent. upon the present outstanding common stock; a dividend which will be warranted by the company's surplus.

(2) An offer ratably to all stockholders of \$10,000,000 first preferred stock at par and accrued dividend.

(3) An offer to the holders of the second preferred stock of an opportunity for a virtual exchange of their present stock on the basis of 100 shares of second preferred stock for 75 shares of first preferred stock.

This plan having been fully carried out, there would be issued and outstanding \$57,500,000 preferred stock and \$30,000,000 common stock, leaving unissued \$22,500,000 preferred stock and \$10,000,000 common stock. And the company thereafter will have but two instead of three kinds of stock.

Of this preferred stock the \$2,500,000 gained through the retirement of the second preferred stock would be available (without exceeding the two to one requirement of the New Jersey Law) for offer if deemed advisable for the minority holdings of the Rubber Goods Manufacturing Co. stock.

The \$20,000,000 preferred stock and the \$10,000,000 common stock then remaining would be available for the future uses of the company.

The result of these operations would be to obtain \$10,000,000 additional cash for the United States Rubber Co. in a way giving ratably to the stockholders the benefit of the premium upon the \$10,000,000 preferred stock.

Before deciding finally as to this plan the board of directors desires to know the disposition of the stockholders, and accordingly recommends that this meeting be adjourned to reconvene at the company's office in New Brunswick, New Jersey, on Friday, May 31, at 12 m., for an informal vote upon these propositions. The proxy committee announces that unless and except as otherwise instructed it will vote in favor of this plan all present proxies not withdrawn before that meeting.

In case of approval by a sufficient amount of stock, the board of directors expects then to proceed to take the action, and to call the special stockholders' meeting or meetings necessary to carry the proposed plan into effect; and then or thereafter to submit a further plan or plans for the refunding of all of the existing obligations of the company and of its subsidiaries, and adequate provision for future needs of this important and steadily extending organization in a chief industry of the world.

By direction of the board of directors a copy of this address is being mailed to every stockholder.

SAMUEL P. COLT, *President.*

A SUPPLEMENTARY ANNOUNCEMENT.

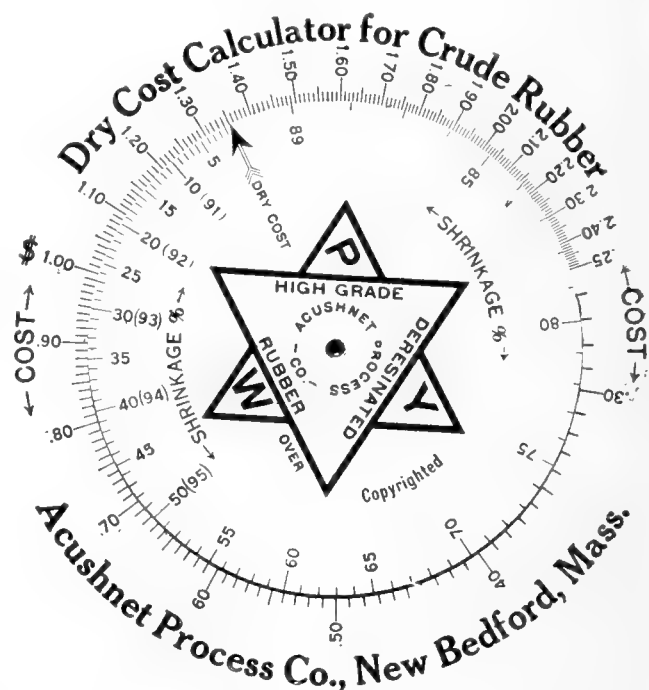
Following the reading of his address Col. Colt made the following announcement:

"Among the things that I advocate is the immediate construction by the United States Rubber Co. of the largest and best tire plant in the world in order to meet the growing demand for our tires.

"I feel that we are warranted in this undertaking from my belief that the tire industry is still in its infancy, and that although the principle of the 'survival of the fittest' may be found to apply, that the splendid organization of the United States Tire Co. will be able to market a much larger volume of tires than the United States Rubber Co. with its present capacity (although now operating four tire factories) is able to manufacture."

A LIGHTNING CALCULATOR FOR DRY COSTS.

THERE are certainly a great many active brains at large; one proof of which is to be found in the fact that every few days somebody invents some simple little device that does in a minute what able-bodied men have been accustomed to devote hours to. Here is an ingenious little contrivance for getting the dry cost of rubber at a glance. It consists simply of a celluloid disk about 3½ inches in diameter, with another celluloid disk 2½ inches in diameter, the two being fastened together at their centers so that the small disk turns freely on the other disk. To find the dry cost of rubber it is necessary simply to turn the upper disk on the lower so that the percentage of shrinkage comes opposite the



market price of crude rubber; then the arrow marked "dry cost" points to the actual dry cost of the rubber.

For instance, on the day when the accompanying cut was made Upriver fine was quoted at \$1.11. Calling the shrinkage 18 per cent. and placing 18 per cent. on the inner disc opposite \$1.11 on the outer disc, we get a dry cost of \$1.35. It is a tremendous saving of time to people who have these calculations to make. The illustration shows one of these dry cost calculators issued by the Acushnet Process Co., New Bedford, Mass. Anyone who has use for this device can apply to that company and secure one.

THE GOODRICH COMPANY NOT TO BUILD ON LONG ISLAND.

Some of the New York papers have recently had an item to the effect that The B. F. Goodrich Co., of Akron, Ohio, had purchased a large plot in Long Island City, adjacent to the tracks of the Pennsylvania-Long Island Railroad, with the expectation of erecting a factory. In reply to an inquiry, C. B. Raymond, secretary of The B. F. Goodrich Co., makes this statement:

"We have heard this same rumor ourselves and are utterly unable to learn how it ever originated, because we have done nothing of the kind, neither have we had any negotiations nor idea looking toward any such move on our part. You are, therefore, authorized to take this as our official denial of any such intention."

Replete with information for rubber manufacturers: Mr. Pearson's "Crude Rubber and Compounding Ingredients."

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

IN a recent editorial in THE INDIA RUBBER WORLD reference was made to the manufacture of balloon and aeroplane fabric as a new department in the rubber industry, which has recently been taken up by various firms. The subject has had a good deal of attention drawn to it lately by reason of a legal case in

BALLOON FABRIC.

the King's Bench Division, London, in which the North British Rubber Co., Limited, of Edinburgh, sought to recover £253, balance of account from E. T. Willows, the well-known aviator, for rubber cloth supplied in 1910, for the envelope of his dirigible balloon. The case was heard before Justice Scrutton on April 24, 25 and 26, judgment in favor of the North British Co. being given the following week.

In the space available I can only deal briefly with the salient points of the trial. It was admitted by both sides that after five months the fabric of the envelope was, in the judge's words, "past praying for," as regarded its hydrogen-holding capacity, the point at issue being, who was to blame for this condition of affairs? Was it due to faulty fabric or to rough usage? In this matter expert evidence was given by Auguste Gaudron, balloon manufacturer, and Mervyn O'Gorman, superintendent of the government airship factory at Aldershot, for Mr. Willows; while E. Short, balloon manufacturer and aeronaut; Percival Spencer, balloon manufacturer and aeronaut, and H. L. Terry, consulting chemist, Manchester, were for the plaintiffs.

The excessive leakage of hydrogen after five months was attributed by Mr. O'Gorman to a rapid resinification of the rubber, which appeared to have been of perfectly good quality when supplied. He was unable to give any reason for this deterioration, though such occurrences were by no means unknown. With reasonable care the life of such fabric in regular use should be about two years. The plaintiffs agreed with this, though they said that Mr. Willows' balloon had received such treatment as to preclude its lasting that period of time. Mr. Spencer thought that six months' regular use was about the length of life for the fabric supplied in this case.

Mr. Short said that he had made a balloon out of North British Co. fabric, and had used it in Chili with quite satisfactory results, though it had been inflated with coal gas and not hydrogen. Mr. Terry testified to the high grade of the rubber proofing used on both the inner and outer coating of the fabric. This analysis was not questioned in cross-examination, though various matters relating to possible defects in the manufacture were put to the witness. The judge said that there was no proof of any guarantee having been broken, as he was convinced that the fabric as supplied was up to the catalogue figures with regard to tensile strength, moisture-absorption, and permeability to hydrogen. He was also of opinion that there was no rubber, as at present made, that did not gradually become more permeable to hydrogen, owing to some change which did not appear to be understood, but which was described as "increasing porosity." The British government specification had a clause: "The increase in leakage after exposure to all weather conditions for 50 days must not exceed 50 per cent. which showed that these goods could not be considered permanent."

It was for the defendant to satisfy the court that the failure of the fabric was due to the warranties in the catalogue being broken. The result of the mass of the evidence given on both sides had been, his Lordship said, to leave him completely in the dark on most of the points discussed, his only consolation being that in the darkness he had plenty of company. This sort of thing, I may add, has no doubt often occurred before when

technical evidence is called on both sides. No one could read, his Lordship said, the report of the Advisory Committee on Aeronautics without appreciating that explorers were by experiment gradually ascertaining the qualities of the materials they were dealing with. An attempt was made by the witnesses to show that the ordinary life of the rubber material used for dirigible balloons was two years, so that a five months life showed inefficiency, but he thought that the witnesses were merely guessing in the dark. There was not, he thought, any sufficient experience of the life of dirigibles, or of their ordinary work, and its effects on their fabric, to enable any opinion to be expressed on which legal results could be founded.

Mr. Willows, I may say, put in a counter claim for somewhere about £600 for expenditure on hydrogen and loss of fees due to the failure of the balloon. Judgment was given against him on the counter claim as well as in the main claim. It is understood that the defendant will take the case to the Court of Appeal, but this has not been decided at the time of writing.

I may perhaps add a word or two in concluding this report. More than one reference was made to the balloon cloth made by the Continental Rubber Co., though in the newspaper reports reference was generally made to a Continental Co. An unfortunate error occurs in the report of the judgment given by our London contemporary. The statement that the *colored* fabrics were found to lose all their hydrogen-containing efficiency in 50 days weathering should be the *uncolored* fabrics were found, etc. This is an important point and a good deal was said by various witnesses about the different yellow coloring matters now in use generally on such fabrics to protect the rubber from the injurious action of the actinic light rays. As to what is the best yellow dye or pigment for the purpose there does not seem yet to be any general agreement, though there is a pronounced tendency to discard chromate of lead for some of the aniline dyes. A point of interest about the rubber was raised by Mr. O'Gorman, who said that it had not yet been proved that Pará rubber was the best for retaining hydrogen; it might be that some other brand of rubber was superior in this respect.

Independent of any claims which may or may not have been settled in trade circles, by reason of the premature decay of elastic thread in woven goods, there is a good deal of grumbling among retail purchasers of elastic webbing as to the quality, compared with ten or twenty years ago. When complaint is made at the shops of the reduced lasting power, the answer is given that the purchaser must remember the lower price now paid—for instance, in the case of hat ribbon, 2d. per yard instead of 6d. as is old times. When the shopman is told that price is no consideration, that the quality is what is wanted, he replies that better qualities are not now stocked. I don't say that this condition of affairs is universal, but it is quite common from inquiries I have been making, and it seems to me that it is a very unfortunate result of trade competition, combined with parsimony on the part of some purchasers. The cotton fabric appears to be much the same as in the past; but the rubber is of finer count and is possibly woven too much on the stretch. I don't think there is anything wrong with the rubber; the economy in the weaving factories seems to be the adverse factor. In some cases a merchant buys a quantity of elastic thread from the rubber manufacturer, and gets quotations from the weaving factories for making it up into fabric. He probably places the business at the lowest quotation, without going into details of cost, which are beyond his ken; and in this way there is room for future trouble

ELASTIC THREAD.

to arise. Of course, it may be argued that if you get three times as much so-called elastic for your money as you did in past times the purchaser thereby suffers no damage, and the shop-keeper may well say that he is not going to stock a high-priced perishable article for which there is only a limited demand; but all the same it seems a pity for so many classes of rubber goods to be losing their old reputations for quality by reason of the stress of present day business conditions.

At the April meeting of the Manchester section of the Society of Chemical Industry Mr. Sydney Frankenburg, of the well-known firm of rubber manufacturers, read a paper entitled "The History of the Commercial Development of Rubber."

AN ADDRESS ON RUBBER.

The subject matter was limited to familiar ground. This, however, did not detract from its interest to the audience, the great bulk of whom were professedly ignorant of the subject. A number of lantern slides showing rubber plantation scenes were shown, together with numerous slides of rubber machinery, bearing the impress of David Bridge & Co. In referring to plantation Pará, Mr. Frankenburg emphasized its inferiority to Brazilian Pará for the best purposes, and said that a spreading test was the best to show their relative values. It is conceivable that if plantation interests had been represented at the meeting this remark would not have passed unchallenged. Mr. Frankenburg, of course, is by no means alone in his opinion, and in spite of the publication by rubber chemists of elaborate papers showing that wild Pará rubber is not superior to the plantation product, manufacturers still hold their own opinion that it is. The chairman said that what Mr. Frankenburg had told them was very interesting, and he hoped that on a future occasion he would supplement his paper by a more technical one on the manufacture. But this, of course, is quite another matter.

I regret to have to record the death of Mr. Arthur Birley, senior partner of the firm, at Bournemouth, on April 26, from an attack of pneumonia. The deceased had been living at the southern watering place since his retirement some years ago from active participation in the business. He was father of Mr. P. A. Birley, and uncle of Col. R. K. Birley and H. A. and J. H. Birley.

CHAS. MACINTOSH & CO., LIMITED.

New laboratories are now being erected by the company, the present accommodation being insufficient for the growth of work in this department.

On April 11 a handsome testimonial, subscribed for by the clerks and workpeople under his control, was presented to Mr. A. E. Walker on the occasion of his silver wedding. It must be about thirty years since Mr. Walker entered the firm's service.

ENGLAND GOES IN FOR AEROPLANES.

THE British government has taken up the aeroplane subject quite seriously. It has just authorized the purchase of 60 aeroplanes; and 40 more will be added as soon as enough members of the army and navy have been properly trained to manage them. The government is also giving a great deal of attention to the hydro-aeroplane. Many experiments with these amphibious machines have been tried by naval experts, and the probability is, that the British government will order a number of them.

The important place that flying machines are taking in the military equipment of different nations may be seen from the fact that for the current year France will spend over \$6,000,000, Germany, \$3,500,000, and Great Britain over \$1,500,000 for airships and aeroplanes.

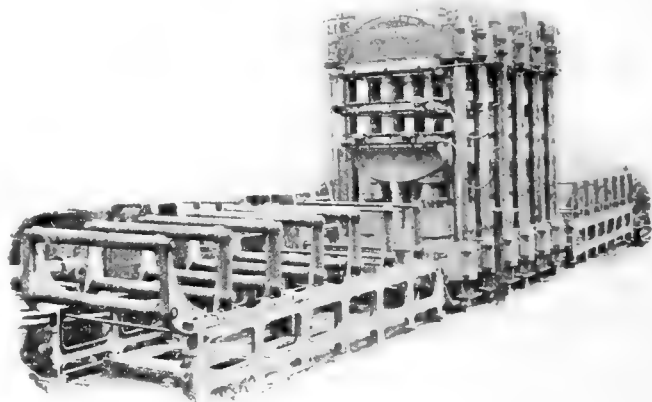
ENGLISH BICYCLE TIRE INDUSTRY.

Reports from England state that the season of 1911 was unsatisfactory from the rider's point of view, rather than from that of the manufacturer. The hard roads affected the tires, so that most bicyclists have been obliged to replace their tires this year.

This circumstance is said to have brought about a large demand for immediate delivery, which is expected to exercise a favorable influence upon the English bicycle tire industry.

A GIGANTIC VULCANIZING PRESS.

EVERY manufacturer of rubber is familiar with the rubber machinery made by David Bridge & Co., at their great plant at Castleton, near Manchester, England. They manufacture a wide variety of rubber machinery, not only for use in manufacturing plants, but on rubber plantations. The accompanying photograph shows one of their very large vulcanizing



presses, recently installed by an English manufacturer. This is not the largest press ever made by David Bridge & Co., but it is quite large enough to be interesting. Its total weight is considerably over 100 tons. It is built up on the duplicate ram system, with a total of 12 rams. The bases are independent of the cylinders, which are made of cast steel, so as to withstand exceedingly high pressure. This press has two daylights and three platens, which make it possible to have a duplex operation. These platens are so constructed as to prevent water lodging in any part of them. In this way a uniform heat for perfect vulcanization over the whole surface is obtained. The total pressure on the platens is nearly 3,000 tons. The heads and bases are separate in order to allow for expansion. At each end of the press there is a special hydraulic plate charging and discharging apparatus, which is furnished with two plates on each side fitted on runners so that the operation of vulcanization is not interfered with.

Machinery is to be installed at the Manchester, England, School of Technology for practical instruction and research work on india-rubber, and the Manchester Corporation has accepted the tender of F. Shaw & Co., Ltd. for the supply of experimental plant for the equipment of a laboratory where research upon broad lines will be carried out. During the last two years courses of lectures have been given in the school upon the chemistry of rubber, and these are now to be supplemented by practical work.

GERMAN SYNTHETIC RUBBER PROSPECTS.

While patenting its various discoveries, the "Farbenfabriken" of Elberfeld, formerly F. Bayer & Co., has (according to its statements at the annual meeting) apparently been making slow progress in the production of synthetic rubber. One obstacle seems to be the prospect of advanced prices in Germany of the necessary raw materials.

It is reported in the German press that the company may decide to put up a plant for synthetic rubber in a foreign country. Diplomatic reserve seems to characterize its policy, and the big German concern is evidently the "dark horse" in the race.

CENTRAL UNION OF GERMAN RUBBER GOODS FACTORIES.

WHILE the annual report of the above body presented to the general meeting of May 10 included a good deal of routine matter, various points of general interest were likewise treated.

The Union is composed of 47 factories, the size of which is shown by the following figures:

Employing 100 and less hands	7
100-300 "	19
300-500 "	9
500-1,000 "	7
Over 1,000 "	5
	—
	47

Prominence is given to the subject of exhibitions. Two confidential reports were made to the Union on the London Rubber Exhibition of 1911. The interest taken in the approaching New York Rubber Exposition is shown by the reproduction of its preliminary announcements, which had been received through the Permanent Exhibition Commission for German Industry. This fact signifies the official approval of the New York Exposition by the German government. As the German Exhibition Commission exercises close discrimination in such matters, its approval is more than a mere formality, and indicates official confidence in the exposition.

Among the objects of the Union is the conservation of the interests of German manufacturers as to customs duties. On these lines, representations were made to the German government as to the duty on wringer rolls, now paying the equivalent of 3 per cent. *ad valorem*, but of which it is sought to alter the classification to a higher scale.

With reference to the subject of the cost of *Hevea* rubber in the Straits Settlements, reference is made to the following opinion of Secretary Dernburg, of the Colonial Economical Committee:

"I consider fully grounded the statement that at a price of 2 shillings a pound, Indian plantations would be making a good profit; if not today, then in a short time, when the larger instead of the smaller part of the planted area will be available for tapping."

Such are the principal features of the annual report, which give a general idea of the working of the Union during the last business year.

GERMAN OFFICIAL VIEW OF THE RUBBER MARKET.

The official report of the German Colonial Rubber Bureau for the first quarter of 1912, referring to the recent temporary advance in prices, attributes same to the momentary shortness in receipts, particularly of various second-grade qualities, to the use of which manufacturers have now become accustomed. This has been particularly the case during the last few months in Guayule rubber, these conditions being considered likely to continue for the present.

On the other hand, the opinion is expressed that the Mexican troubles will finally be settled, and that the accumulated rubber will then lead to increased exports. Another factor in the situation is the prospect of considerably increased European imports of plantation rubber. As there is not more than a normal increase of consumption to be looked for, a considerable augmentation of the visible supply is thought likely to occur by the end of the year, which would be bound to exercise a depressing effect upon prices.

The fact is commented upon that the Brazilian government seems to have finally abandoned the idea of rubber valorization: this resolution being characterized as in the interest of the country itself.

GUMMI-KAMM CO. CHANGES ITS NAME.

The report lately presented by the board to the shareholders of the "Hannoversche Gummi-Kamm Compagnie" contained the following interesting announcement:

"Our concern, founded in April, 1862, can now look back upon an existence of fifty years, and we intend to commemorate this jubilee with appropriate festivities.

"Since its foundation the scope of our manufactures has been extended to a number of articles other than rubber combs, and we therefore consider a change should be made in our designation, which no longer corresponds with existing conditions. In the name selected of the 'Excelsior Rubber Works of Hanover' we think we have found a title which embraces all the articles made by us. While we part with regret from the old designation, we consider the change to be necessary and hope it will be approved by the general meeting."

Among other features of the report were the announcement of a dividend of 25 per cent. and the statement that the business of the company has increased 50 per cent. within the last two years. This development has necessitated, besides other additions, the erection of a new factory, which is expected to be in operation about the middle of the current year.

THE PROPOSED NEW GERMAN PATENT LAW.

After years of preparation, the proposed revision of the German Patent Law is approaching completion. Specially prominent among the changes it would make is the right of employes to participation in their inventions. By the present law, an invention by an employe in the line of his work belongs exclusively to the owner of the plant. Under the proposed new law the interests of the employe are to be considered, he being guaranteed a pecuniary share in his invention.

GERMAN DUTY ON AMERICAN RUBBER ROLLS.

In a communication to the German government quoted in the annual report of the Union of German Rubber Goods Factories, attention is called to the fact that in 1910, 506 tons of "machinery for washing and chemical cleaning" were imported into Germany, of which 421 tons came from the United States. The duty at the equivalent of 66 cents per 100 pounds only represented 3 per cent. Under the provisions of the tariff another paragraph would equally apply to these articles, with a duty of \$6.60 per 100 pounds. As the official interpretation of the tariff has hitherto placed rubber rolls at the lower rate, it is sought by the German manufacturers to obtain a reconsideration of the question. It is stated that the proportion of rubber in the rolls is 75 per cent. of their value or even more.

USE OF RUBBER RESINS IN THE PAPER INDUSTRY.

A communication to the "Papierfabrikant," a leading German organ of the paper industry, states that although the waste resins resulting from the deresination of Pontiniak are completely unsaponifiable, they can be brought with rosin soap to an emulsion, which can be employed in place of the free rosin now used for sizing paper. A uniform compound is found by melting 50 parts Pontiniak waste resin, 5 parts of Guayule waste resin and 50 parts of colophony (rosin), a hot solution of 10 parts caustic potash and 50 parts of water, being gradually stirred underneath. Such emulsions remain in that condition even when much diluted, and can be completely precipitated by alum.

Waste rubber resins can also be brought to an emulsion with other substances. For instance, a compound can be made of two parts glue, one part starch, four parts jelutong waste resin and ten parts of water. The pasty mass thus obtained is diluted with water, as may be required. These emulsions containing unsaponifiable resins are said to possess marked light-resisting qualities.

THE RUBBER INDUSTRY IN JAPAN.

By Our Regular Correspondent.

JAPANESE RUBBER INCORPORATIONS.

THE last twelve months have witnessed the incorporation of various new Japanese rubber companies, supplementing the important industry already existing in that branch, the principal features of which have been from time to time recorded.

In May, 1911, the Kashima Rubber Works Company was established at Takinogawa, Tokyo, by M. Kashima. It has been employed in the manufacture of rubber thread, as well as other goods, but is understood to be about to cease manufacturing operations.

The Sanyo Rubber Works Company was established at Ushigome, Tokyo, in June, 1911, by K. Inaba. Its product will be chiefly composed of soles for sandals, its motive force being furnished by a 25 h. p. boiler.

After the destruction by fire of the plant of the Daishin Sha Rubber Co. in December, 1911, it changed its name to the Sugie Rubber Works, building a new factory at Kameido, Tokyo, to which location it removed from Nitpori, Tokyo. The product of the company chiefly includes medical supplies. The motive power is supplied by a 60 h. p. condensing engine, and by a 70 h. p. boiler of Lanarkshire type.

The proprietor is E. Sugie, after whom the works are now called, the experts being Mr. Iguchi, Bachelor of Engineering (of the Tokyo Imperial University), and K. Negishi. The property of the company is about one acre in extent, of which the portion built upon represents about two-thirds.

In January, 1912, the Sun Rubber Company, Limited, was established at Honjo, Tokyo, with a capital of \$6,250, by Messrs. S. Suzuki, K. Suzuki, T. Kato, Y. Kashiwagi and S. Shizo. The manufactures are jinrikisha tires, molded goods and insulating materials, the expert being Y. Kashiwagi, who had been in Boston from 1904 to 1911, and who has had special experience in tires. Motive power is supplied by one 25 h. p. engine.

THE NIPPON RUBBER COMPANY, LIMITED.

One of the important concerns destroyed by the fire of April, 1911, which laid in ashes the northwestern part of Tokyo, was the Nippon Gomu Co., Limited (Nippon Rubber Co., Limited). This company had been formed in December, 1900, through the amalgamation of the previous limited partnership with the Yashida Rubber Works.

In order to prevent the interruption of the manufacturing operations, two temporary factories were started in June, 1911. In August, 1911, the company began the erection of a new factory at Tamahime, Asakusa, which is approaching completion and will employ 130 hands, the motive power being supplied by five engines, with an aggregate of 100 h. p. Hose and bicycle tires will form the chief articles of manufacture. In hose and tires the company's products have been recognized as being equal to those of European manufacture. There are five directors and two inspectors. Nissaburo Okuma is managing director, while the technical expert is Seikichi Yoshida. The area covered by the company's plant is 1¼ acres. It produces 2,000 pairs of tires monthly.

AZUMA RUBBER WORKS.

This private partnership at Honjo, Tokyo, is chiefly engaged in the manufacture of specialties, its production for 1910 including 216,000 rubber balls and 255,000 pair of rubber soles. The motive power is furnished by one 25 h. p. engine. Mechanical goods are likewise made.

RUBBER SOLE FACTORIES.

Rubber soles for straw sandals, etc., are made on a more or less important scale by the firms already named, and, in addition, by Chuo Rubber Works, Tokyo; Nomoto Works, Tokyo; Funabashi Rubber Works, Tokyo; Tokai (or Kwanto) Rubber Man-

ufacturing Co., Tokyo; Koyanagi (or Sigamo) Rubber Works, Tokyo, and others.

Rubber heels are made as a specialty by Ukawa Rubber Works, Tokyo, as well as by the Azuma Rubber Works, already referred to.

These details, in conjunction with those recently given as to various large companies, illustrate the variety which marks the growing Japanese rubber industry.

A FRENCH VIEW OF REGENERATED RUBBER.

IN the opinion of Messrs A. Murat and F. Leconte, in their recent communication to the "Revue Internationale":

"Regenerated rubber (if there really existed a product to which this name could be given), would be that which, extracted from rubber which has already passed through all the phases of manufacturing, and has been thrown aside, can be renovated and employed anew in manufacture; displaying qualities practically equivalent to those of natural rubber as it comes from the tree."

While industry affords numerous examples of this renovation in the case of metals, glass, paper, celluloid, etc., it is remarked that a complete and true regeneration of rubber does not exist; all efforts for that end having failed.

This is attributed to the fact that the vulcanization which necessarily precedes the industrial use of rubber produces changes in its molecular condition, which may be compared to the tempering of steel. It is added that this process has the result of making the rubber lose its plasticity, so that the vulcanized rubber cannot be directly used anew, but requires to be transformed. It being insoluble in all the solvents of natural rubber, and no solvent being known for it, a complete result has not been obtained from the various experiments made for the extraction of the sulphur held in combination.

Quoting the words of the writers of the article: "There are in reality, therefore, only 'pseudo-regenerates.' In practice, after having pulverized the debris, the only course taken is to introduce a high degree of heat, in order to restore to the rubber a certain plasticity; submitting the waste to the action of hydro-chloric and sulphuric acids, which destroy any textile substances present. This relative plasticity (always attained to the detriment of the elasticity and tenacity) allows the product thus prepared to be rolled, and subjected to the same operations as natural rubber. But it will not suffice by itself; to give commercial results, it must be mixed with natural rubber, and still only ordinary and sometimes medium qualities are obtained. It is these agglomerated waste products, which are currently designated as 'regenerated rubber.'"

Regarding the future, the opinion is expressed that while, as long as rubber keeps at a high price, the industry will doubtless continue to use waste rubber on a large scale, it is evident that when it can procure natural rubber on favorable conditions, it will cease to have the same interest in the adulteration of its products.

Such is of course only one side of the case, which is reproduced with the object of reporting the *pros* and *cons* of this important question.

RUSSIAN SYNTHETIC RUBBER.

The report of the necessary financial arrangements having been made for developing the recent invention of Professor Ostromylensky is confirmed. It seems to have been acquired by the "Bogatyr" Rubber Goods Manufacturing Co., of Moscow, this company being said to contemplate increasing its capital and manufacturing capacity. It proposes to erect new premises for the production of synthetic rubber on a large scale. The project will be submitted to the shareholders at the approaching general meeting of the company.

RUBBER PLANTATION FIRE RISKS.

WHILE urban fire risks are an ever present hazard, it must not be supposed that the forest is exempt from their influence. The very magnitude of the scene increases the danger through fire to property, if not to life, while the peril is further increased by the inflammable nature of the material exposed to this risk.

More particularly does this danger affect plantations, where skilled labor has supplemented the work of nature and has increased the value of natural products by systematic cultivation. Two causes have been considered responsible for plantation fires, according to whether they originate at home or away from home. In the former category are included fires arising from the burning of a new clearing situated perilously near a planted-out area. With regard to this particular feature of hazard, the fire may arise from the absence of means for the protection of such parts of the estates as may be within their reach. It should be borne in mind that the burning referred to is only possible during a drought, which equally affects the surrounding open country.

Whether these precautions should include clean weeding is a matter of opinion, but some experts have held that a moderate carpet of weeds, carefully watched and free from too much long coarse grass, is the cause of but little danger from fire. The point of real importance is to have a natural barrier or protective belt of primeval forest, from 25 to 50 feet in width, clear of secondary growth, between the plantation and adjoining cultivation.

One constant source of hazard is the proximity of native settlements, without the intervention of such a protective barrier. This risk is largely due to the careless manner in which the natives use fire in cooking and to the highly inflammable construction of their dwellings. Another feature of danger consists in the long grass, growing among other vegetation, and liable to be fired by a red-hot cinder from a locomotive, or by the sun's rays; with the risk of the unlimited destruction of rubber trees.

In view of these conditions, an important point for consideration is the question of wide planting, on the same principle as the greater security offered by the detached arrangement of houses in urban communities. Another interesting question is that of the high resistance said to be offered to fire by the Pará rubber trees (*Hevea Branhensis*), in view of its absorption of moisture being on a scale of importance. The recuperative properties of this tree are of special interest to underwriters, it having been asserted that a fully matured *Hevea* would have to be cleaved to its heart before its life was endangered. Even more tenacious of life is the *Castilloa* tree, which often sends up shoots after being burned almost to the ground.

On general economic principles, the insurance of rubber trees approaching the productive stage, is a matter which claims the earnest attention of planters. While the danger in question is essentially a tropical one, it likewise affects rubber planters in all countries. Rubber trees are the planters' stock in trade, and as such call for the protection of insurance in the same way as the property of the merchant or manufacturer.

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

THE DROUGHT—WELCOME SHOWERS.

THE drought may be said to continue, but there is hope. April has been wetter than any month this year, and on a recent Sunday we had a typical rainy season day. It poured in tropical torrents for hours, and the rainfall gauge at the Georgetown Waterworks recorded a precipitation of 4.02 inches, which is a great deal more than for any previous months this year. The next day, however, dawned bright enough and the Sunday storms, although fairly general, appear to have been in the nature

of a spasmodic effort on the part of the clerk of the weather. The general conditions being slightly more favorable some companies are preparing to despatch balata expeditions immediately and thus anticipate the rains. The Amsterdam Balata Co. is the foremost in this respect. Whether the additional expenditure incurred in get-



A TROPICAL FOREST FIRE IN MEXICO. ONE THAT DESTROYED MANY RUBBER PLANTATIONS.

ting these expeditions to the grants will be worth while is an anxious question.

THE RUBBER EXHIBITION—COLONY NOT TO BE REPRESENTED.

The colony is not to be represented at the rubber exhibition to be held in New York in September, after all. A meeting of the Permanent Exhibitions Committee has lately been held to discuss the matter, and the following official communication has been issued by the secretary, F. A. Stockdale, the Assistant Director of Agriculture. "It had been hoped that it would have been possible for this colony to send a representative exhibit of rubber, balata and other products to this exhibition, which is arranged to be held in New York from September 23 to October 3 next. The Permanent Exhibitions Committee had obtained several promises of exhibits, but at a recent meeting they were compelled to decide, owing to the severe drought, that it would not be possible to get together a collection of exhibits that would be creditable to the colony. Particulars in regard to open competitions have been asked for by the Permanent Exhibitions Committee in case any samples of rubber from this colony can be entered in these competitions, and it is hoped that arrangements can be made whereby literature relating to this colony and its industries may be distributed at the Exhibition."

The decision is probably premature. The Exhibition is a good

five months ahead, and the drought cannot be prolonged much longer. It should be possible to get together an exhibit, and considering the value the New York market is likely to be to us it seems a thousand pities to despair so soon. "The Daily Chronicle" roundly denounces the act editorially, and says under the caption: "A Colossal Blunder!" "The decision of the Permanent Exhibition Committee to rescind its resolution, passed some months back, to send exhibits to the Rubber Exhibition to be held in New York towards the end of the year, will create profound disappointment, and we hope that it will arouse the indignation that is required. It is said that owing to the severe drought it will not be possible to get together a collection of exhibits that would be creditable to the colony. The drought has brought to light many evidences of the supineness of the powers-that-be, but this surely sets the seal upon an amazing series of blunders. We are not at all impressed by the excuse thus ingeniously made.

"When we are informed, for instance, that rubber at Bartica has scarcely been affected by the drought, and when we recollect that the Exhibition does not open until September 23, and that long before that time it should be quite possible to procure the most excellent samples of rubber and balata, we shall not awaken surprise by manifesting a robust scepticism. It seems that the evil genius which sent the Agricultural Conference to Trinidad is again in the ascendant. We do not ask the reason, for we are aware we shall not receive enlightenment; we are content in condemning in unmeasured terms an act which is in keeping with the 'lazybones' policy that is retarding the colony's progress. The money spent on the London Exhibition was for the most part well spent on account of the education in this class of work which it supplied Mr. Stockdale. That is to be thrown away, in spite of the fact that Mr. Stockdale made a point in his report upon the Exhibition of the number of enquiries coming from America. Participation in the New York Exhibition would be about the most useful thing we could do just now; that is why we are not going to do it, we suppose."

BALATA IN BOLIVAR—INTERESTING PARTICULARS.

A Mr. Grossman, a German, who went to Bolivar, Venezuela, twenty-seven years ago and settled down there, has come to Georgetown to spend a short holiday. Interviewed by the "Daily Argosy" concerning the balata and rubber industries there, he said that the drought has affected them quite as badly as here. "The balata industry," he said, "is carried on in Bolivar much the same way as in British Guiana. The men get advances before they leave for the concessions. The advances are liberal, as the men have to travel for considerable distances, and require money for the support of their dependents until they are collecting balata, when the dependents can go to the offices of employers and cash orders. It is mostly block balata that is obtained. It does not fetch such a good price as the sheet balata obtained in British Guiana and Surinam, but it is got in large quantities and the profits are satisfactory enough in a good season.

"The law prohibits laborers from cutting down bullet-trees so that the industry may be preserved for as long a time as possible. The men are so far away, however, that it is impossible to control their actions. Should it be ascertained, however, that trees have been cut down, then the employer of the men responsible, besides suffering other penalties, is compelled to plant five trees for every one destroyed. Cases of absconding do occur. They are not very frequent, however. The men, for the most part, realize that it is in their own interest to get to the grants and collect as much balata as possible. Besides, the government deals very severely with absconders. The rubber industry is much older than the balata industry. It was in full swing when I went to Bolivar, whereas it was not till 1888 or so that any attempt was made to get balata. The latter industry is good for many a year yet, as there are big tracks of bullet-trees that have not been touched."

THE BALATA COMMITTEE RESUMES ITS WORK.

A meeting of the Balata Committee is to be held today, when the evidence of the Commissioner of Lands and Mines will be taken. The meeting is to be in private. The committee was appointed, it will be recollected, to devise means by which the labor difficulty might be dealt with and it was to report promptly. Unfortunately the president, Mr. J. J. Nunan, solicitor general, who is also president of the Royal Agricultural and Commercial Society, was sent as one of the latter body's delegates to the Agricultural Conference in Trinidad, and subsequently he was called to England on important business and obtained leave of absence. Now that he has returned the committee is resuming its business, and doubtless its report will be presented at the earliest possible moment consonant with the careful consideration of a difficult and delicate problem.

WEST INDIAN RECIPROCITY IN CANADA—EFFECT UPON RUBBER AND BALATA.

We are informed that the visit of a number of delegates from the West Indies to the Dominion of Canada to discuss with the government the possibility of entering into a reciprocal trading arrangement has had a successful termination; but it has not been stated what articles have been selected for preferential treatment. The agreement is said to be based, however, on the report of the Royal Committee, which was appointed to inquire into the matter. That commissioner recommended that both balata and raw rubber should enjoy the benefits of preferential treatment when admitted to the Canadian market. At present both articles are on the Canadian free list; so it is difficult to guess whether they are affected. In 1909-10 we sent 4,533 pounds of balata to Canada, valued at \$1,450. That is all we have sent for the last five years; we sent none last year. Canada has never taken any of our rubber. The treaty, which is mainly to assist the sugar interests, will probably not affect either rubber or balata.

THE DROUGHT IN DUTCH GUIANA.

A graphic illustration of the rainfall conditions in Dutch Guiana, is afforded by a comparison of the reports on the subject in three successive issues of the "Weekly Echo" of Paramaribo, the bright and newsy organ of the English-speaking community in Dutch Guiana.

April 27.—"It is now three solid weeks since the last shower of rain fell, and the weather is just as dry now as if it had never rained. . . . Official records of balata received in this city from January 1 to April 27 show no more than 1¾ tons."

May 4.—"The rainy season has set in, for during the week we have had prolonged showers. . . . It is reported from the interior that rains are falling regularly and that the rivers are rising."

May 11.—"We are now right into the rainy season and during the week heavy downpours of rain fell all over the colony."

As the season will have commenced late, the opinion is expressed that bleeding need not end in August, as is usually the case.

BURMA AT THE NEW YORK EXPOSITION.

THE Lower Burma Rubber Planters Association has decided to have an exhibit at the Rubber Exposition to be held in New York next September. The expenses have been provided for—partly by the local government, and partly by private contributions. The suggestion has been made—and it certainly is to be hoped that it will be carried out—that the exhibition should be typically Burmese with teakwood posts and canopy, and a Pagoda hung with rubber. This would be an interesting and picturesque feature.

Some Notes on Rubber Planting.

DR. HUBER ON THE BRAZILIAN SITUATION.

PARTICULARS received of the views of Dr. Jacques Huber, as expressed by him at Colombo, on his way to Malaya and the Dutch East Indies, show that he anticipates that in a few years, at the present rate of increase, the production of the plantations of the East will far exceed that of the Amazon valley, which is more or less stationary.

His opinion is, however, that even at present the cost of rubber production throughout the Amazon region, is in a general way less than three shillings (72 cents) per pound. At a selling price of three shillings, there would of course be for some districts little profit under the actual conditions of labor, freight and taxation; but with improvement of these conditions (in which direction the government has already taken steps) this price would, he considers, even permit a certain extension of the rubber industry on the Amazon.

Dr. Huber further expressed the view that it would be impossible to eradicate what had been for fifty years the principal industry of Brazil, on which the people depend. In fact, as he said: "Even with the lowest prices which plantation rubber could afford, there will always be an output of rubber from the Amazon valley, which cannot be neglected in the estimations of future rubber supply."

FORWARD SALES OF RUBBER.

At the annual meeting of the Anglo-Malay Rubber Co., Limited, the chairman expressed the opinion that the publication of forward sales should be at the discretion of the board. In answer to the view of a shareholder that when rubber was low, forward sales tended to keep the big manufacturers out of the Mincing Lane market, Mr. Lampard said: "It is extremely advisable, in my judgment, at all events, even at a sacrifice of 1d. or 2d. per pound, to make forward contracts with manufacturers, the reason being that it is absolutely an essential point of a manufacturer's business to be able to cover his commitments forward. If he does not do it with plantation rubber he is going to do it with hard Pará—(Hear, hear, hear)—and it should be the aim and object of everyone associated with the cultivated rubber industry to see that the produce is distributed as freely and as easily as possible through the manufacturers' hands, and that is at the back of our policy." (Applause.)

LONDON ASIATIC RUBBER & PRODUCE COMPANY, LIMITED.

The fourth annual general meeting of the above company was recently held in London. From the accounts submitted it would seem that the cost of production f. o. b. Port Swettenham was 1s. 4.91d. in 1911 against 1s. 4d. in 1910. Adding English sale and other expenses the total cost was 2s. 0.46 d. per pound, while the average gross price realized was 4s. 11.49d. per pound.

The yield was 352,688 pounds, against 180,477 in 1910, while the estimate for 1912 is 600,000 pounds. New modern machinery has been installed at the recently erected "Diamond Jubilee" factory.

ANGLO-MALAY RUBBER CO., LIMITED.

ACCORDING to the report submitted at the recent annual meeting of this company, the output for 1911 was 780,972 pounds, against an estimate of 750,000 pounds. This quantity was obtained from about 2,150 acres in bearing, the number of trees tapped being 260,328. Under these circumstances the averages obtained were about 3 pounds per tree and 360 pounds of rubber per acre.

The cost of production and sale, everything included, was 1s. 8½d. per pound, while the average net price realized was 4s. 10¾d.

For 1912, the estimated product is 900,000 pounds, of which 192,434 pounds have been harvested during the first quarter of the year. Forward contracts for 1912 have been made for 144 tons at an average of 4s. 6.41d. per pound.

In commenting upon the report, Mr. Arthur Lampard alluded

to the fact that the increased product for 1911 had so far counteracted the effect of the average drop as compared with 1910 of 1s. 3d. per pound in price realized, that the profits for 1911 were only £32,000 short of those for 1910. The results of various past years were thus summarized by Mr. Lampard:

Year.	Product.	Profits.	Dividend.
1906 .....	.....	£19,599	18 per cent
1907	224,778 lbs.	27,000	20 " "
1908	350,688 "	50,000	30 " "
1909	517,550 "	135,000	80 " "
1910	673,132 "	171,000	100 " "
1911	780,972 "	139,000	70 " "

The authorized capital of the company is £150,000.

The profits made in six years amount thus to nearly four times the capital invested, while the total dividends represent 318 per cent.

VALLAMBROSA RUBBER CO., LIMITED.

The yields for the last three business years ending March 31, have been: 1909-10, 371,318 pounds; 1910-11, 411,476 pounds; 1911-12, 434,950 pounds. The yield for 1911-12 is slightly below the estimate.

SCOTTISH MALAY RUBBER CO., LIMITED.

The yield for the first four months of 1912 has proved nearly double that of the corresponding period of 1911; the respective figures being 37,446 pounds, against 19,248 pounds.

SIALANG RUBBER ESTATES, LIMITED.

For the three months ending April 30, 1912, the yield of rubber is reported as 26,463 pounds. One fifth of this quantity has been sold at the average equivalent of about \$1.20.

ELECTRIC COAGULATION.

REPLYING to a question the "Gummi-Zeitung" states that trials have been made of the use of the electric current for the extraction of crude rubber from latex, suitable apparatus for that purpose having been constructed. Yet up to the present such processes have not been generally adopted, as the current is usually not available at the points of extraction or preparation.

An English patent of October 10, 1908 (No. 21,441) was granted to Thomas Cockrill, of Colombo, Ceylon, according to which the continuous flow of latex is filtered and gradually distributed over the whole width of an endless band. By the action of the electric current, the crude rubber is deposited in a granular mass upon the band, which is put in motion and passes through rollers, which bring it to a continuous strip. The latex serum flows from the band into a receiver, while the rubber strip is mechanically loosened and brushed. It is then treated with warm water, runs through metal heated rollers and is finally cut up.

Information of a detailed character seems to be lacking as to the practical success of this method, which requires electrical apparatus of a more or less extensive character. The claim has, however, been made that by its adoption pure rubber with smooth surface can be obtained from a neutral or an alkaline latex. It is remarked that this use of the electric current would simultaneously extract and purify the crude rubber.

THE REPORTED STOPPAGE OF ACRE RUBBER SHIPMENTS.

Interest was aroused by a statement which appeared on May 21 in a daily journal, to the effect that a dispatch from Rio de Janeiro said: "It is reported from Manáos that the Acre rebels have stopped the shipping of rubber." Inquiry failed to obtain confirmation of the report. One importer qualified it as a move of some speculative interest, with the object of boosting prices.

Obituary Record.

FRANCIS DANE BALDERSTON.

FRANK D. BALDERSTON died suddenly on the afternoon of May 11, at his home at Charlesgate, Boston, Massachusetts. He had been at home for three or four weeks troubled with inflammation of a vein in the leg, diagnosed by the physician as phlebitis. No apprehension, however, had been felt by his family or his physician, and the fatal termination of the disorder came most unexpectedly to all.

The funeral services were held on May 14, at the Chapel in Forest Hill Cemetery, the Episcopal service being read



FRANK D. BALDERSTON.

by the Rev. Alexander Mann, of Trinity Church. There was a large attendance of his business and social friends, including not only all the members of the Boston office of the United States Rubber Co., but representatives of that company from various other cities.

Mr. Balderston was born in Baltimore, Maryland, February 16, 1863, and moved with his parents to Boston in 1877. After graduating from the English high school of that city he entered the employ of Balderston & Daggett, of which firm his father was the principal member.

Frank Balderston's connection with the National India Rubber Co. was, aside from his conspicuous fitness for the position, in the nature of an inheritance. As far back as 1857 his father, John C. Balderston, acted as distributor of the products of the Providence Rubber Co., which later became the National Rubber Co. Twenty years later he moved to Boston and formed the co-partnership of Clapp & Balderston. Later the firm changed to Balderston & Daggett, and acted as the selling agency for the National Rubber Co., of which Mr. Balderston was a director. When in 1887 Colonel Colt secured control of this company, changing its name to the National India Rubber Co., Mr. Balderston became vice-president and the firm of Balderston & Daggett continued to act as selling agents for the reorganized company, Mr. Balderston devoting his entire energy to the National products. On his retirement from business his son Frank was made manager of sales for the tennis shoe department of the National India Rubber Co., and was very successful in this important line.

Frank Balderston was in many respects one of the most lovable characters that the rubber trade has known. He was always a gentleman, quiet in his tastes, fond of out-of-door sports, such as golf—in which he excelled—and with a rare faculty for making and keeping friends.

As assistant secretary and later as secretary of the Rubber Club of America he was brought into close touch with men in all lines of the trade and was universally liked and respected. Mr. Balderston was married to Miss Clara E. Banchor, of Boston, in 1895, who survives him.

RESOLUTIONS BY THE RUBBER CLUB OF AMERICA.

WHEREAS, Death has removed from our midst our beloved fellow member, Mr. Frank D. Balderston, it is

Resolved, That the Rubber Club of America has lost one of its most loved, useful and loyal members.

Quiet, friendly, conscientious—one who did well whatever he undertook—a cultured, sincere, helpful gentleman, his sudden passing is sincerely mourned.

Resolved, That the Rubber Club of America in particular, and the rubber trade in general, have suffered an irreparable loss.

Resolved, That we extend to his family our sympathy for them in this great bereavement, and that these resolutions be engrossed upon the records of the club.

HENRY C. PEARSON,
ELSTON E. WADBROOK,
GEORGE P. WHITMORE,
Committee on Resolutions.

IGNACE PLAMONDON.

Ignace Plamondon, for over a quarter of a century general superintendent of the Canadian Rubber Co. of Montreal, Limited, died on April 23, in his seventy-fifth year.

Ignace Plamondon came to Canada from New Hampshire when 14 years of age. He secured employment in the rubber mills of



IGNACE PLAMONDON.

the Canadian Rubber Co. of Montreal, Limited, over forty-five years ago. After working in the mills for some years, as a reward of his ingenuity and skill, he was promoted to the position of general superintendent, which position he filled with great advantage to the company for over twenty-five years.

Mr. Plamondon was recognized, for many years, as one of the foremost rubber experts in Canada, and was frequently consulted by the Faculty of McGill University, and also by many American authorities on the chemistry of rubber manufacturing. He retired from active duties ten years ago and since then had received a pension granted him by the company, in view of his long and faithful services. Of a quiet, unassuming and jovial disposition, Mr. Plamondon made many warm friends. One of his sons, Joseph E. Plamondon, is city salesman for the Canadian Consolidated Rubber Co., Limited, of Montreal.

SEABURY A. FORD.

Seabury A. Ford, who had been identified with Adams & Ford, Cleveland, Ohio, for over 50 years, serving as president of the corporation for many years, died on May 12, in the eightieth year of his age. He had not only been a prominent figure in the rubber footwear world for many years, but was well known in the social life of his city; being one of the charter members of the Union Club of Cleveland, and a member of the Chamber of Commerce. His funeral took place at his home in Cleveland on May 14.

EDWARD A. STRANG.

In the paragraph above, the death is mentioned of S. C. Ford, president of The Adams & Ford Co., Cleveland, Ohio. By a most remarkable coincidence, Edward A. Strang, vice-president of that corporation, died on May 15—three days after the death of Mr. Ford. Mr. Strang's death occurred most suddenly, and was caused by heart disease. He had been identified with Adams & Ford for a number of years, and was widely and favorably known to the rubber footwear trade, both by reason of his business ability, and his attractive personality. Mr. Strang was largely instrumental in the successful exploitation of the "Ever-Stick" rubber, the patent rights of which were purchased about five years ago by The Adams & Ford Co.

LOUIS H. AYME.

News comes of the death in Lisbon, Portugal, on May 16, of Consul General Louis H. Ayme, from locomotor ataxia.

Mr. Ayme was a native of New York, but spent many years in Chicago, where he was engaged in newspaper and scientific work. He served as press editor at the World's Columbian Exhibition in Chicago in 1893, and also acted at one time as special ethnologist for the Smithsonian Institute. During the last 12 years or more of his life he had been connected with the U. S. Consular service. He was consul at Pará three years, from 1903 to 1906, and while in that position made a careful study of rubber matters on the Amazon. THE INDIA RUBBER WORLD of August, 1905, contained his report to the United States government on "A New Source of Amazon Rubber." He was promoted from this position to the consulship in Lisbon in 1906.

LUDWIG EDLER VON REITHOFFER.

The death is announced on April 19 at Vienna, of Herr Ludwig Edler von Reithoffer, in his 92d year. His name is connected in the closest manner with the history of the Austrian rubber manufacturing industry, of which he has been regarded as the practical founder; having effected in 1872 the fusion of the firms then existing, of Menier, Harburg, and of J. N. Reithoffer, Vienna, under the style of the "United Rubber Goods Factories, Harburg-Vienna, formerly J. N. Reithoffer." The company thus formed was hence the direct successor of Johann Nepomuk Reithoffer, who had established the firm bearing his name.

Far beyond the limits of Austria the deceased was known as an enterprising manufacturer and as the head of the Austrian rubber industry. It was reserved for him to witness its development, from its early days to its present flourishing position.

His work met with the highest official recognition, various honors being conferred upon him by the Emperor of Austria. In him the poor lose a generous benefactor, while his death is mourned by a large circle of business and personal friends.

JOSEPH FYNNEY.

Among the victims of the ill-fated "Titanic" was Joseph Fynney, principal member of the firm of Joseph Fynney & Co., Liverpool, England, crude rubber merchants. Though Mr. Fynney was a comparatively young man—being only in his thirty-sixth year—he had an extensive knowledge of the rubber trade and was himself widely known in rubber circles, not only in England, but on the continent and in America. His business career was one of marked success. He did not, however, permit his commercial interests entirely to monopolize his time and attention; he took the deepest interest in the Young Men's Club, connected with St. James' Church at Toxteth (a suburb of Liverpool), and devoted much time to the interests of the club and to the welfare of the young men and boys who belonged to it. His death—particularly occurring in this tragic way—has caused great sorrow among his business associates and friends. His body was among the few recovered.

ALEXANDER WARDROP.

Much regret has been expressed at the death in his 53d year of Alexander Wardrop, of Kandy, Ceylon, secretary of the Ceylon Planters' Association; the cause being heart failure, due to aneurism of the aorta. He started his planting career in 1880, and in 1907 succeeded Edgar Turner as secretary of the Ceylon Planters' Association. As a polished and vigorous speaker he rendered valuable services to the planting interest in dealing with the government, and with individuals, and his loss will be keenly felt.

SAMUEL EMERSON.

Samuel Emerson, who was for a long time connected with the Apsley Rubber Co., and has since been engaged in various enterprises, principally textile manufacture, died at his home, Lunenburg, Massachusetts, May 2.

Mr. Emerson was born at Pascoag, Rhode Island, and was in his sixty-third year. His first business venture was as owner of a store at Millbury, Massachusetts, after which he became associated with the firm of Jason Emerson & Son in manufacturing textile goods, with mills in Massachusetts and Connecticut. The firm lost heavily in the Boston fire of 1872. Later he entered the retail clothing business at Providence, but went to Boston soon after as proprietor of a store. It was after his Boston venture that he became connected with the Apsley Rubber Co.

JOHN F. PETTY.

John F. Petty, who for 40 years was a foreman and master mechanic at the plant of the National India Rubber Co., Bristol, died at his home on Cook street in that town on April 24. He had been ill for four years. Mr. Petty was appointed foreman of the machinists' department of the factory in 1869, and continued at work there until his illness began. He was a native of Tiverton, Rhode Island, was in his 79th year, and on September 15, 1907, celebrated his golden wedding anniversary.

ERNEST E. BUCKLETON.

Ernest E. Buckleton, general manager of the Northwestern Rubber Co., Ltd., Litherland, Liverpool, England, who has recently crossed the United States on his way home from a visit to Japan, sailed from New York on the "Lusitania," May 28.

NEW TRADE PUBLICATIONS.

BAILEY'S RUBBER STORE, Boston, Massachusetts, controlled by C. J. Bailey & Co., has distributed quite a large edition of a small pocket catalog of 32 pages and cover, describing and illustrating the great variety of rubber goods handled by this company, particularly rubber clothing suited to all occupations—automobiling among others.

The Editor's Book Table.

PEEP AT INDUSTRIES—RUBBER. BY EDITH A. BROWNE. Adam and Charles Black: London. [Cloth covers. 8vo. Pp. 88, 24 full-page illustrations.]

THE reviewer has perused this particular book with a double pleasure, first, because whatever Miss Browne writes makes good reading, and in the second place, because she is numbered among the most esteemed contributors to THE INDIA RUBBER WORLD.

This is not a technical volume, intended for rubber experts. It is just what its name implies—a peep at the great rubber industry. As a matter of fact, it really is more than its name implies, for it is more than a peep; it is an intelligent survey of the whole rubber field, and it gives the general reader all the information he needs in order to put him in a position fully to appreciate the scope and importance of this great industry.

While there are only 88 pages of text, the author has succeeded in weaving into those pages a great deal of information. "Weaving" is quite the proper term to use, for this information is not tacked on here and there, but is an integral part of an exceedingly interesting story, which has many romantic threads running through it. As an illustration of this latter characteristic may be cited the opening chapters of the book, where an imaginary but undoubtedly accurate picture is drawn of the way in which the aborigines—many years, possibly hundreds of years—before the first line of rubber history was written, discovered the peculiar properties of the latex of the rubber tree.

The author describes the gathering of rubber in its wild estate, and on the plantation. She shows the methods of tapping, and coagulating in getting the *Hevea* rubber of Brazil, the *Castilloa* of Mexico, the *Sapium* of British Guiana, the *Funtumia* and *Landolphia* rubber of equatorial Africa, and the methods of tapping and coagulating in vogue on the plantations of the Middle East. One chapter is devoted to a visit to a raw rubber factory, and gives a description of the method of converting the latex into the rubber of commerce as it is pursued on the more important estates.

The 24 full-page illustrations greatly enhance the value of the book, as they run the whole gamut of rubber gathering from the tapping of the wild trees in the South American and African forests to the more orderly method of work in vogue on the plantations. These illustrations have been selected with discriminating care, with reference not only to their subject matter but to their artistic and photographic excellence.

As the name indicates, this book is one of a series of brief surveys of great industries—this being the second, a book on sugar being the first. If the other books of this series are written with equal skill—if they mingle information and entertainment as felicitously as the author has done in this book—the series will certainly meet with great success.

THE CHEMISTRY OF THE RUBBER INDUSTRY. BY HAROLD E. Potts, M. Sc. London: Constable & Co., Limited, 1912. [Cloth. 8vo. 146 pages.]

As rubber has been justly styled "the colloid *par excellence*," Mr. Potts' able treatise appropriately starts with an outline of the colloidal phenomena connected with that substance, thus leading us to the chemistry of the rubber industry in its practical application.

The work of the chemist begins, when the latex has been obtained, with the selection of the most suitable method of coagulation and subsequent treatment, in order to produce rubber of the best quality and as uniform as possible in its properties. The colloid; being thus a colloidal problem.

with special reference to the protein which is present. Coagula-

tion (or the coalescence of the rubber globules) apparently depends upon the removal of the protective film of protein or other colloid; being thus a colloidal problem.

Five different methods of coagulation are described in their general character and subdivisions—by heat, creaming, chemical agents, beating and soaking, and extraction with solvents.

While there is a fair constancy in the properties of wild *Pará*, the variations in the general appearance of plantation rubber and in its behavior on vulcanization form the chief problems now confronting the planter. The quality of the latex on the same plantation varies not only with the age of the tree, but also with its location. Hence Mr. Potts suggests that some plan should be devised by which the method of coagulation can be adjusted according to the quality of the latex.

After dealing with the question of washing, Mr. Potts takes up the subject of the constituents of technically pure rubber, which is treated in detail. Then follows a discussion of loss in washing and of moisture, as well as of the proportions of resin, insoluble matter, nitrogen, ash and rubber itself, as revealed by analysis. Gutta-percha and balata are likewise considered from the same points of view.

The fact that rubber manufacture has been defined as the "art of compounding," emphasizes the enormous importance of judicious mixing. It is not enough to use good raw rubber; it is also necessary to select the most suitable compounding ingredients which will yield a mixing best satisfying the requirements as to various properties at the required price. Chemical work actively controls the quality of the raw materials used and cures faults by altering existing mixings.

In connection with mixing the questions of waste and reclaimed rubber as well as of rubber substitutes are appropriately dealt with, followed by the consideration of inorganic compounding materials in their various forms. In this connection special reference is made to "Crude Rubber and Compounding Ingredients," by H. C. Pearson.

In the final chapter is treated vulcanization, to which fundamentally important invention is due the great development of the use of rubber.

Dealing with the various processes for the production of synthetic rubber Mr. Potts remarks that while these processes are very numerous, an effective one will have to produce isoprene very cheaply, it being doubtful whether many of them are capable of doing so for large quantities.

Such are a few of the salient points of Mr. Potts' valuable work, indicating close study and diligent investigation of the chemistry of the rubber industry, the contents of the book fully justifying its title.

An "author's index" supplements the regular "subject index" and enhances the value of the work for purposes of reference.

THE BRITISH WEST INDIES, THEIR HISTORY, RESOURCES AND Progress. By Algernon E. Aspinall, author of "The Pocket Guide to the West Indies." Little, Brown & Co., Boston, Mass. 1912. [8vo. Pp. 435. Board covers.]

People interested in the West Indies will remember Mr. Aspinall's hand book of those islands, published a few years ago, which contained a great deal of useful information in small space. His new book is much more pretentious, and much more complete; it gives all the essential information regarding the history, climatic conditions, physical aspects, and potentialities of the British possessions in and around the Caribbean Sea. These possessions have not had the attention they should have received from the English public, in view of their importance and possibilities; but

there has recently been a great awakening of interest—not only among the English, but among Americans in all of the West Indian Islands. The opening of the Panama Canal, which bids fair to take place promptly on the advertised date, will tremendously increase the importance of many of these islands.

While of the 435 pages contained in the book, only 9 of them are devoted to rubber, those 9 pages are naturally most interesting to the greater part of the readers of this publication. Rubber cultivation is an industry of comparatively recent date in the West Indies, but within the last few years—particularly since the great possibilities in rubber plantations have been shown by many phenomenal successes in the Middle East—a great deal of rubber interest has been aroused in certain of the West Indies. In Trinidad and Tobago alone, there are now some 33,000 acres of rubber plantations—30,000 being planted to *Castilloa*, and 3,000 to *Hevea*. In Tobago alone, there are over 120,000 trees. Six years ago this island exported less than 100 pounds of rubber; last year its exports amounted to nearly 5,000 pounds, and very few of the planted trees have yet reached an age for tapping, so from now on, the exports will rapidly increase. A little rubber planting has taken place in some of the other islands—namely, St. Lucia, Dominica and Jamaica, but they have not reached the export stage.

In British Guiana there are now 1,700 acres planted to rubber—1,000 acres to *Hevea Brasiliensis*, and 700 to *Sapium Jenmani*. The chief rubber industry of British Guiana, however, is in the export of balata, which is bled from the indigenous balata or bully-tree. This industry amounted last year to over 1,000,000 pounds, valued at nearly one-half million dollars.

It will be interesting to prospective planters to know that there is a vast deal of land, finely suited for rubber cultivation, still belonging to the Crown that can be acquired under very easy conditions. According to Mr. Aspinall, it is estimated that there are still in British Guiana, 9,000,000 acres of Crown land, "eminently suitable for the cultivation of rubber"—land that resembles in nearly all its conditions those tracts in Brazil, where the *Hevea Brasiliensis* reaches its highest perfection.

Considering the small number of the pages devoted to rubber, the author has managed to pack into them a great deal of valuable information.

INSECT PESTS OF THE LESSER ANTILLES. BY H. A. BALLOU, M. Sc., Entomologist of the Imperial Department of Agriculture for the West Indies; 1912. [8vo. Paper. 194 pages with 185 illustrations.]

Those who have not made a study of entomology may fail to recognize the fact, that its definitions and distinctions are as minute as those of any other branch of natural research. Quite as exact as the terms of botanical differentiation are those of entomological description; with the additional difficulty, that while the objects described are in the one case often examples of living vegetation, they are in the other usually dead and grouped together as found, after long and patient search.

Seeing the inherent difficulty of his task, Mr. Ballou is to be congratulated on the completeness of its execution. Following him through his treatment of the subject, it will be noted that he keeps in view the insects of the Lesser Antilles, locating them in the first place among the group of "arthropods," or insects with jointed limbs. This group is itself divided into four classes: Crustacea, arachnida, myriapoda and hexapoda. Roughly speaking the equivalents of these four scientific terms would be: Crabs, spiders, multipedes and insects. These definitions are further elucidated by eight illustrations.

Next comes the general question of the natural history of insects, including the points which insects have more or less in common. These points (treated in detail) comprise: Structure and growth; senses; circulation; respiration; nervous system; digestion; reproduction.

The class of hexapoda (or insects properly so called) is, as

will be remembered, one of the four classes of the group of arthropods. This class is itself divided into ten orders: Straight-winged; fringe-winged; half-winged; dragon flies; flat-winged; nerve-winged; scale-winged; sheath-winged; two-winged; membrane-winged. Thus tracing an insect through the various definitions of group, class and order, it has in each case a distinct place in the economy of nature.

At this point Mr. Ballou takes up the practical part of his subject: insect pests of crops; successively dealing with cotton; sugar-cane; citrus fruits; cacao; Indian corn; arrowroot; tobacco; sweet potatoes; cocoanuts; rubber; nutmegs; bananas; yams; beans; miscellaneous plants.

The several species of rubber-producing plants cultivated in the Lesser Antilles are more or less subject to the attacks of scale insects, *Castilloa* being particularly so, and *Hevea* being less liable to them. The common mealy bug is often found in the leaves of *Castilloa* trees, causing, however, less injury than might be anticipated, as these trees shed their leaves at intervals. *Funtumia* rubber is very liable to attack by the green shield scale, while the Ceará specimens now being grown are attacked by a flat black shield scale. *Castilloa* trees are sometimes attacked by a borer, the larva of one of the long-horned beetles.

In the concluding chapters, Mr. Ballou deals with the insects which respectively attack man, domestic animals and stored products. Preventive and remedial measures are fully discussed, an interesting feature of this section being the consideration of the control exercised by the natural enemies of insects.

One of the most noticeable points of Mr. Ballou's interesting work is the sharpness of the illustrations (185 in number), which bring out the objects with microscopic clearness. The text is throughout lucid and condensed, the whole work reflecting much credit on its author.

A LECTURE ON THE PARA RUBBER TREE (HEVEA BRASILIENSIS). By W. J. Gallagher, M.A., Director of Agriculture F. M. S.). Kuala Lumpur, 1912. [Paper. 8vo. 27 pages.]

While much has been written about the cultivation and treatment of the Pará rubber tree, the lecture by W. J. Gallagher, Director of Agriculture, Federated Malay States, delivered before various planters' associations in 1909 and 1910, treats in detail the physiology of that tree and the operation of tapping. Such a talk from a practical man to practical men has undoubted value.

The ideal system of tapping, in Mr. Gallagher's opinion, is most likely to be evolved by the scientist, as a compromise between scientific necessity and practicability. Meanwhile he urges planters to learn all they can of the build of the tree and what they do to it, besides extracting latex, when cutting away part of its living body, as in ordinary tapping.

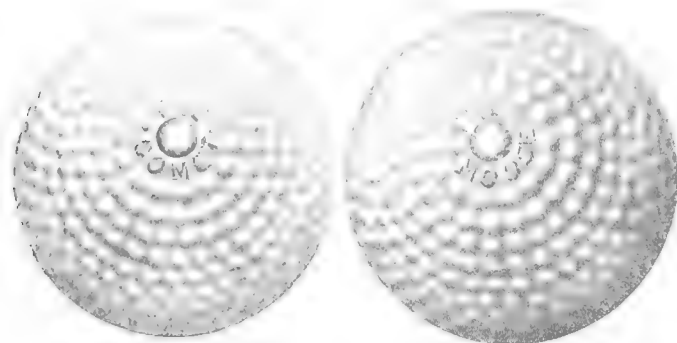
ALGOT LANGE'S "IN THE AMAZON JUNGLE."

Our May issue contained a review of Algot Lange's exceedingly interesting book, telling of his unique experiences in the jungles of the upper Amazon. The review as written contained this sentence: "He has set down the facts as they befell; and if many of them seem rather remarkable and others of them quite miraculous, that's the reader's gain." But the compositor, with the perverseness of his kind, after proofs had been carefully read and approved, in a moment of unholy abandon changed *miraculous* to *ridiculous*—a horse quite of another color. There was much in Mr. Lange's jungle adventure that might properly be called miraculous, but nothing assuredly that could be called ridiculous.

New Rubber Goods in the Market.

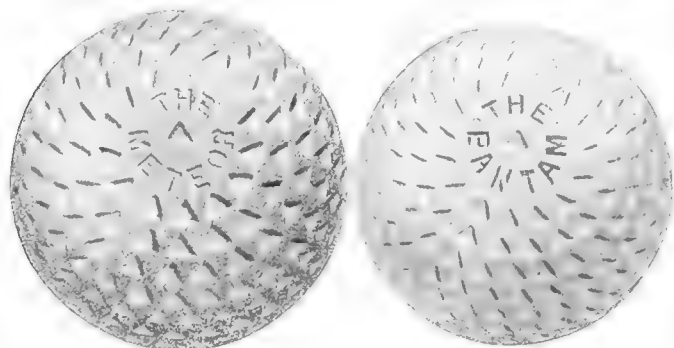
SOME 1912 GOLF BALLS

GOLF players will be interested in these four golf balls, which are offered for the present season by The B. F. Goodrich Co. The two illustrations immediately below show the pebble marking. One is the "Comet" and the other the "Moose." These are both full-sized balls. The Comet is intended to satisfy players who insist that nothing else is quite as good as the old popular pebble marking. The ball is built for hard work. The



Moose, which is similarly marked, is a little higher-priced ball. It floats and can be depended upon for long distance work.

The two balls shown below, the "Meteor" and the "Bantam," have triangular depressed marking. The Meteor is a full-sized



ball, floats in water, and the center and cover are constructed expressly to resist glancing and topping blows. The Bantam is a smaller-sized ball and sinks in water. It is good for long courses, and is popular with strong, accurate, hard-hitting players. Being a small ball it is particularly serviceable when the play is against the wind. [The B. F. Goodrich Co., Akron, Ohio.]

AEROPLANE AND MOTORCYCLE TIRES.

Aeroplane tires are, to be sure, not in very general use at present, as many people are still struggling along without this latest means of conveyance, but the aeroplane tire is a very



AN AEROPLANE TIRE.

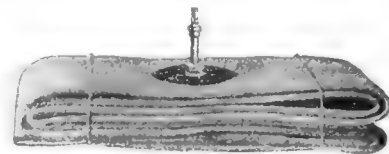


ANTI-SLIP MOTORCYCLE CASING.

essential part of the aeroplane. They are usually of especially fine construction in order to have them at once light, resilient, and exceedingly strong.

The accompanying cut shows a tire which is made in three sizes 20 x 2, 20 x 2 1/4 and 20 x 3.

We show also a section of a motorcycle casing and a motorcycle inner tube made by the same company. The casing, it will be noted, is studded to give it a non-slipping quality. [Continental Rubber Works, Erie, Pennsylvania.]

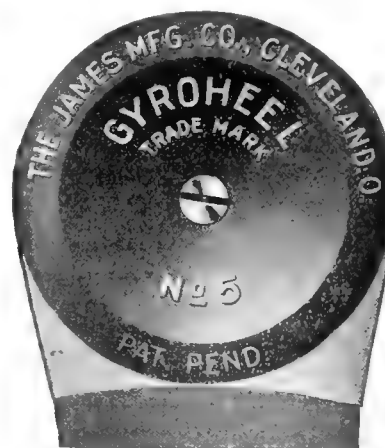


MOTORCYCLE INNER TUBE.

A REVOLVING RUBBER HEEL.

You remember that "wonderful one-hoss shay" that Oliver Wendell Holmes wrote about, that was constructed in such a uniformly durable manner that no part of it gave out until it all gave out together? Now here is a rubber heel that is constructed

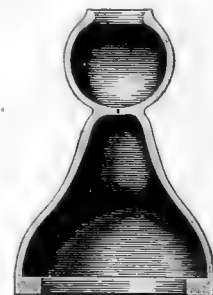
on the same principle, for you can wear it until every part of it is absolutely gone. It is called the Gyroheel, because it revolves. It is a round disk of rubber with a raised edge and concave in the center. It is held on the leather heel by a screw that goes through this concave center; then as the edge of the heel becomes worn, it can be given a little turn, and in this way the heel lasts until the entire edge all around is worn off. It is an eco-



nomical heel to begin with, and can be adjusted by the wearer himself. Of course, it does not cover the two corners of the heel as the old style rubber heels do, but, against this objection can be cited its economy, and the ease with which it can be attached. [The James Manufacturing Co., Cleveland, Ohio.]

A NIPPLE THAT'S DIFFERENT.

The baby holds an important position in the commercial world. Many devices have been invented for his comfort, welfare and peace of mind. Among them is the new ball-cup nipple illustrated herewith. The ball at the top of the nipple is an open cup, from the bottom of which a puncture leads into the nipple. This puncture thus located is not enlarged by use, but remains at a fixed size, and regulates the quantity of nourishment. The ball is easily turned for cleansing; and obviously cleanliness in devices of this sort is much to be desired. [The Hygeia Nursing Bottle Co., Buffalo, New York.]



A HAIR NET WITH A RUBBER BAND.

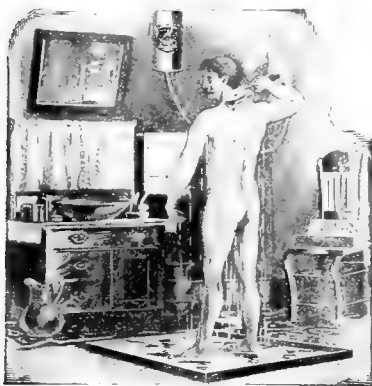
Expert mathematicians have estimated that the average woman spends one-tenth of her life fixing her hair. When you stop to think that this is one whole year out of every ten, the pro-

found seriousness of this situation is brought home with great force. Now here is a little device which saves a great deal of that time. It is a delicate, almost invisible, silk net with a rubber band. The net holds the wayward locks in place and the rubber band holds the net to its work. It is made by Theo. H. Gary Co., No. 41 Union Square, New York.

EVERY ROOM A BATH-ROOM.

THERE is no longer any excuse for anyone to belong to "the great unwashed," for here is a new patent bathing apparatus that can be used in any room, and be carried wherever one may go. It consists of a metal receptacle holding about a gallon of water, which is put on a shelf above the head or hung up against the wall. From the bottom of this receptacle there is a rubber tube

5½ feet long, terminating in a patent "applicator" which is a sort of brush with a metal frame and hard rubber back into which bristles, soft or stiff, as may be desired, are inserted. The water comes out through these bristles. There is, in addition a receptacle in which the bather stands. This when not in use, can be folded into a small compass. When it is to be used it is spread out flat on the floor, and being



PORTABLE OUTFIT IN USE

rubber-finished holds the water. It has raised edges so that the rest of the room is kept perfectly dry.

Under the metal receptacle there is a small metal heater that uses denatured alcohol, which enables the bather to have the water at any desired temperature; you can also regulate the flow. The brush not only distributes the water, but enables the user to give himself as much friction and massage as he may wish. The whole apparatus can be tucked away in a small space and is quite inexpensive. To people who have not convenient or adequate bath facilities this certainly should be a boon. [The Allen Manufacturing Co., Toledo, Ohio.]

THE FLAP IS THE FEATURE.

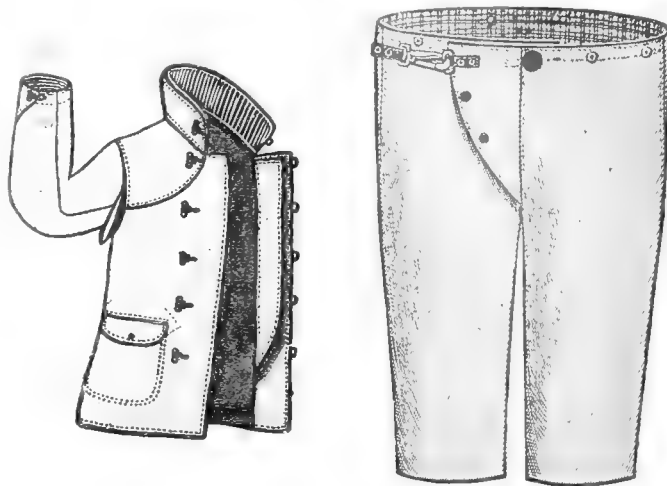
You will notice in the accompanying illustration of a motorcycle tire that the casing on one side ends in a wide flap that is so constructed as to lie under the opposite bead of the casing,



instead of resting, as is usually the case, on the inside of the opposite wall. This new arrangement is said to eliminate the possibility of the crimping or pinching of the inner tube. In addition to the "Gridiron" tread shown here, the same company make a "Studded" tread otherwise similar in construction. [Kokomo Rubber Co., Kokomo, Indiana.]

WATER AND HEAT-PROOF FIREMEN'S SUITS.

A suit especially adapted for firemen, being water-proof and heat-proof, is here shown. It is soft and pliable, with a smooth finish that will not catch on nails, etc. It is composed of two

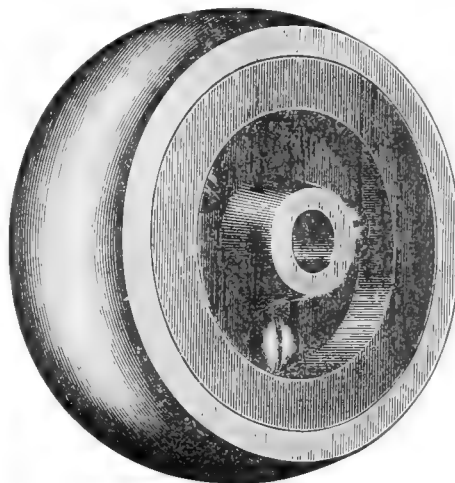


THE "UPTHEGROVE" FIREMEN'S SUIT.

pieces of cloth cemented together with rubber between. In this way the rubber is not exposed to the heat or to the air and yet the suit is absolutely waterproof. It comes in tan color, light and dark, and has a patented fold device under the arm which, while not bulky, gives absolute freedom of motion to the arms. The coats of these suits come 38 inches long, unless especially ordered different. [Upthegrove Sporting Goods Co., Valparaiso, Indiana.]

IT SAVES THE FLOORS.

The ordinary metal caster, on a piece of furniture that is frequently moved, is liable to mar the floor. The caster which



THE SCHENCK CASTER.

is here illustrated has a rubber tire, which prevents any marring of the floor. It has an additional advantage moreover where it is used on small trucks, such as are wheeled around in stores for the distribution of packages, in that it renders the work of the truck noiseless. [The M. B. Schenck Co., Meriden, Connecticut.]

STILL PLENTY OF "BIKERS."

A great many people think because bicycles are no longer as numerous on the streets as formerly, that the bicycle has practically disappeared. This, however, is not the case, as can be judged from the fact that the yearly output of bicycle tires continues to be an item of considerable importance. During 1911 at the United States Tire Co., Hartford factory, 443,445 bicycle tires were manufactured and very few of them consigned to export. The Indianapolis plant of the same concern produced an equal number. This is a sufficient number of tires to equip almost half a million bicycles.

News of the American Rubber Trade

BOSTON WOVEN HOSE AND RUBBER CO.'S NEW OFFICES.

The Boston Woven Hose and Rubber Co., of Boston, Massachusetts, has opened new offices in the Hudson Terminal Building, corner of Cortlandt and Church streets, New York. This location is central and very convenient for the company's customers. The stock will be carried as heretofore at the warehouse, at 116 Duane street, only a few blocks' distance from the offices.

WOONSOCKET RUBBER CO.

The Woonsocket Rubber Co., Woonsocket, Rhode Island, one of the subsidiary companies of the United States Rubber Co., has filed the following statement of its condition as of March 31 last:

Assets	1912.	1911.
Real Estate	\$ 847,218	\$ 847,218
Machinery	318,212	307,603
Manufacturing merchandise, material and stock in process.....	2,760,699	3,248,012
Cash and debts receivable.....	106,929	93,746
Miscellaneous	11,011	5,397
Adjustment of inventory.....	1,198,994	1,198,994
Total	\$5,243,063	\$5,700,970
Liabilities		
Capital stock	\$3,000,000	\$3,000,000
Accounts payable	310,122	681,946
Profit and loss	318,958	225,124
Miscellaneous	83	.....
Floating indebtedness .....	.....	150,000
Surplus	1,613,900	1,613,900
Total	\$5,243,063	\$5,700,970

STATEMENT OF GUTTA PERCHA & RUBBER MANUFACTURING CO.

The Gutta Percha and Rubber Manufacturing Co., New York City, reports the following statement of its condition on April 1, 1912:

Assets	1912.	1911.
Real estate	\$ 131,000	\$ 128,000
Machinery	150,000	150,000
Mfg., mdse., mat'l & stk. in process.....	621,000	618,101
Cash and debts receivable.....	399,120	427,175
Total	\$1,301,120	\$1,323,276
Liabilities		
Capital stock	\$1,000,000	\$1,000,000
Accounts payable	67,340	123,276
Surplus	233,780	200,000
Total	\$1,301,120	\$1,323,276

SOME ATTRACTIVE BLOTTER ADVERTISING.

THE Boston Rubber Shoe Co. has sent out to the trade a set of eight or ten different blotters showing some handsome pictorial scenes and advertising a number of the popular boots and shoes made by this famous old company; among them the "Warrior" all-duck boot, the "Storm Slipper" with a service heel, and the "Norwood," a croquet for women and children. These blotters are not only useful but artistic. Jobbers can get them, in limited quantities, by applying to the company's advertising department, 42 Broadway, New York.

POLACK TYRE AND RUBBER CO.

THE Polack Tyre and Rubber Co., Broadway and Fifty-ninth street, New York, recently incorporated under the laws of the State of New York, has taken over all the assets and assumed all the liabilities of the old Polack Tyre Co., recently dissolved. The capital stock of the new company is \$700,000, of which \$200,000 is preferred stock, issued for cash at par, and represents the new capital invested. This reorganization is for the purpose of providing better distributing facilities and for increasing the selling organization. The company's manufacturing arrangements will probably be improved by the erection of a new plant.

STATEMENT OF THE AMERICAN RUBBER CO.

The statement of the American Rubber Co., one of the subsidiary companies of the United States Rubber Co., shows the following condition on March 31, 1912:

ASSETS.		
	1912.	1911.
Real estate	\$251,489	\$207,864
Machinery	178,534	167,747
Manufacturing, merchandise, material and stock in process.....	1,871,489	2,198,154
Cash and debts receivable.....	474,379	306,644
Lasts	27,495	22,000
Patent rights	1,680	1,680
Miscellaneous	9,857	4,129
Total	\$2,814,923	\$2,908,218
LIABILITIES.		
Capital stock	\$1,000,000	\$1,000,000
Accounts payable	142,204	529,339
Unpaid dividend	100,000	.....
Surplus	1,572,719	1,378,879
Total	\$2,814,923	\$2,908,218

STATEMENT OF THE MANHATTAN RUBBER MFG. CO.

The Manhattan Rubber Manufacturing Co., Passaic, New Jersey, reports the following statement of its condition on February 1, 1912:

ASSETS.		
	1912.	1911.
Real estate	\$306,017	\$307,188
Machinery	372,203	382,002
Merchandise	746,629	768,864
Cash and debts receivable.....	628,894	618,055
Total	\$2,053,743	\$2,076,109
LIABILITIES.		
Capital stock	\$750,000	\$500,000
Accounts payable	273,672	340,013
Floating indebtedness	440,000	670,000
Surplus	590,071	566,096
Total	\$2,053,743	\$2,076,109

The United States Rubber Co. has extended to July 1 the period during which the extra discount of 5 per cent. on rubber boots and shoes applies. According to the announcement sent out the 1st of February, this discount extended only to May 1.

FRANCIS H. APPLETON MEETING THE KING.

When the Ancient and Honorable Artillery goes to England this summer, it will be under the command of First Lieutenant Francis H. Appleton. The company will sail from Boston on the steamer "Arabic" July 2, and is due to arrive in Liverpool on July 10. It will proceed immediately to London, remaining there until July 30. On Monday, July 15, the company will be reviewed by King George at Buckingham Palace. The return trip will be made on the steamer "Celtic," leaving Liverpool August 1, arriving in New York



FRANCIS H. APPLETON

August 8, and reaching Boston the next morning, where the returning warriors will be received with appropriate honors.

A. S. Funk, treasurer of the La Crosse Rubber Mills Co., La-Crosse, Wisconsin, who also has general charge of the plant (which makes a full line of rubber footwear and specializes in tennis goods) has recently been making a tour of the rubber centers in the east. He states that the business of his company has increased 50 per cent. during the past year.

Ernest E. Buckleton, general manager of the Northwestern Rubber Co., Ltd., Litherland, Liverpool, England, who has recently crossed the United States on his way home from a visit to Japan, sailed from New York on the "Lusitania," May 28.

R. L. Baird, of the Rubber Trading Co., New York, who spends much of his time traveling among rubber mills, is doing an increasingly satisfactory business and becoming a marked favorite with many purchasers.

William J. Golden, who was foreman of the mechanical fabric and sundries departments at the plant of the National India Rubber Co., Bristol, for a number of years, until they were recently removed to Cleveland, has accepted a similar position with the Vulcanized Products Company at Muskegon, Michigan.

Arthur E. Friswell, who will be remembered as having been one of the most expert pneumatic tire producers, and who was connected with the Mechanical Fabric Co., Providence, Rhode Island, for a number of years, and later with the Goodyear Tire & Rubber Co., Akron, Ohio, has bought a home in Bermuda and intends to make that his permanent residence.

Leon Ekert, of the firm of Ekert Brothers, Hamburg, Germany, sailed from New York for Hamburg on May 14, on the North German Lloyd steamer, the *Kronprinzessin Cecilie*. Mr. Ekert was in this country about three weeks and visited, among other points of interest, the mills of the Boston Rubber Shoe Co., at Malden, Massachusetts, and of the Candee company at New Haven, Connecticut. His firm has been distributing the footwear of these two factories, particularly the Candee brand, for the last 15 years. The firm of Ekert Brothers is known on the continent as a particularly enterprising concern, advertising generously and distributing a large quantity of goods.

William Keyes has recently taken a position as sales manager of the Chicago Rubber Clothing Co., of Racine, Wisconsin. He is already very well known to the rubber trade, as he has had many years' experience as a jobber and a manufacturer. He formerly had a controlling interest in the firm of Prescott Brothers, general distributors of rubber goods in Boston, Massachusetts. He has charge for the Chicago Rubber Clothing Co. of all the territory east of Omaha.

Frank L. Byrne, who is very well, and favorably known to rubber manufacturers in the United States, and is a member of the staff of the New York Commercial Co., is assisting Harold P. French, the Akron agent of the company, during the illness of Mr. French's assistant, Mr. Baldwin.

I. W. Easton, who for a number of years was connected with Noyes Bros. & Cutler, St. Paul, Minnesota, has resigned and taken the position of first assistant in the sundries department of Lehn & Fink, New York, succeeding W. J. Cathcart. Mr. Easton has had many years' experience in the druggist sundries line, and carries with him to his new position the good wishes of the trade.

Thomas W. Harmer, who founded the Harmer Rubber Reclaiming Works at East Millstone, New Jersey, has left that company, and no longer has any connection with it.

MR. MANDERS RETURNS TO NEW YORK.

A. Staines Manders, the organizer of the Rubber and Allied Trades Exposition, to be held in Grand Central Palace, New York City, next September, arrived in New York on the "Olympic" on May 22, after six weeks' stay in London, devoted to advancing the interests of the exposition in the English and Continental fields.

Mr. Manders will remain in New York continuously until after the exposition. His efforts abroad have been attended with signal success, and the number of foreign exhibits will be extremely large. This does not mean, however, that it will be chiefly a crude rubber show, for while the planters will make a generous exhibit, only one-third of the exposition will be devoted to crude rubber—the other two-thirds being divided equally among rubber manufactures and the allied trades.

The exposition will bring to New York a large number of people interested in the rubber industry from foreign countries, including a great many buyers of manufactured goods. This will give an opportunity to American manufacturers profitably to exploit their products, that they have not been slow to appreciate. As a result a great number of the leading manufacturers of the United States have already contracted for space.

SUPERINTENDENT COLT ENTERTAINS SALESMEN.

THE traveling salesmen of the wire department of the National India Rubber Co. were given a May-day outing and Rhode Island clam-bake by Superintendent LeBaron C. Colt, at Poppasquash—the famous farm belonging to his uncle—Colonel Samuel P. Colt, president of the United States Rubber Co. On the previous evening they had been given a reception by Superintendent Colt at his own home in Bristol.

PROMOTION FOR CAPTAIN TOWNSEND.

THE first appointment made by Major General John F. O'Ryan, who was recently given chief command of the New York State National Guard, was that of Captain Arthur F. Townsend of Squadron A, to the position of Gen. O'Ryan's quartermaster. Captain Townsend, who is president of the Manhattan Rubber Manufacturing Co., has had 25 years' experience in the New York National Guard, beginning as a private in the Seventh Regiment in 1887, and becoming a member of the famous Squadron A in 1901.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks, ending May 25:

COMMON STOCK, \$25,000,000.

For the year—High, 67 $\frac{3}{4}$, May 21; Low, 45 $\frac{1}{4}$, February 1.
Last Dividend, April 30, 1912—1%.

Week	May	4....	Sales 15,300 shares	High	60 $\frac{3}{4}$	Low	56 $\frac{7}{8}$
Week	May	11....	Sales 7,420 shares	High	58 $\frac{3}{4}$	Low	56
Week	May	18....	Sales 18,300 shares	High	62 $\frac{3}{4}$	Low	58 $\frac{1}{2}$
Week	May	25....	Sales 66,260 shares	High	67 $\frac{7}{8}$	Low	61 $\frac{7}{8}$

For the year—High, 67 $\frac{3}{4}$, May 21; Low, 45 $\frac{1}{4}$, February 1.
Last year—High, 48 $\frac{1}{2}$; Low, 30 $\frac{1}{2}$.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, April 30, 1912—2%.

Week	May	4....	Sales 1,400 shares	High	114 $\frac{1}{2}$	Low	113 $\frac{3}{4}$
Week	May	11....	Sales 500 shares	High	114 $\frac{3}{8}$	Low	113 $\frac{1}{2}$
Week	May	18....	Sales 1,217 shares	High	114 $\frac{3}{4}$	Low	113 $\frac{3}{4}$
Week	May	25....	Sales 5,764 shares	High	116	Low	110

For the year—High, 116, May 20; Low, 109, January 30.
Last year—High, 115 $\frac{1}{2}$; Low, 104.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, April 30, 1912—1 $\frac{1}{2}$ %.

Week	May	4....	Sales 1,300 shares	High	80	Low	79
Week	May	11....	Sales 430 shares	High	80	Low	78 $\frac{7}{8}$
Week	May	18....	Sales 1,100 shares	High	80 $\frac{1}{2}$	Low	79 $\frac{1}{2}$
Week	May	25....	Sales 10,275 shares	High	85 $\frac{1}{2}$	Low	80 $\frac{3}{4}$

For the year—High, 85 $\frac{1}{2}$, May 21; Low, 75, January 23.
Last year—High, 79; Low, 66.

SIX PER CENT. TRUST GOLD BONDS, \$18,000,000.

Outstanding of the 1908 issue of \$20,000,000.

Week	May	4....	Sales 35 bonds	High	104 $\frac{5}{8}$	Low	104 $\frac{1}{2}$
Week	May	11....	Sales 46 bonds	High	104 $\frac{5}{8}$	Low	104 $\frac{1}{2}$
Week	May	18....	Sales 52 bonds	High	104 $\frac{7}{8}$	Low	104 $\frac{1}{2}$
Week	May	25....	Sales 69 bonds	High	104 $\frac{3}{4}$	Low	104 $\frac{1}{2}$

For the year—High, 105, February 24; Low, 103 $\frac{3}{4}$, January 6.
Last year—High, 105; Low, 101 $\frac{1}{4}$.

THE APPALLING AMERICAN FIRE WASTE.

THE following statement from the address of Governor Charles S. Deneen, of Illinois, before the National Fire Protection Association at its annual meeting, held in Chicago, May 14 to 16, which shows the great—in fact appalling—fire waste in this country as compared with European countries, will be of interest to business men in general and particularly to manufacturers and dealers in rubber fire hose.

"According to statistics of the Interior Department of the United States Government for the year 1910 the fire loss in the United States was more than \$234,000,000. And in addition to the loss of this property these same statistics show that 1,449 lives were sacrificed by fire and 5,654 people were injured through this same agency. This tremendous drain upon the financial resources of this country as indicated by these statistics does not include any of the cost borne by the cities and villages throughout the country for the maintenance of the equipment to fight fire.

"European nations have dealt with this problem with a signal degree of success and the result of restrictions in building laws and improved building conditions, inspections and the awakening of the mind of the people to a full realization that a loss by fire is a loss forever has proven to the students of this question how much criminal wastefulness our people are guilty of in this country. In 1910 thirteen of the largest cities of Germany with a combined population of five and one-half millions suffered a fire loss of \$1,067,205. Five American cities, to wit, Chicago, Philadelphia, Boston, St. Louis and San Francisco, with a combined population of 100,000 less, suffered a fire loss during the same period of nearly fifteen million dollars. The city of New York, last year, suffered a fire loss of five times the loss of

London and nine times that of Paris. In Berlin, a city of about equal size to Chicago, the average fire loss is less than \$200,000, while in Chicago the annual property loss by fire for the past five years has been about forty-seven times as much. Between 1901 and 1910 the per capita loss to every man, woman and child in the United States was \$2.71 for this fire waste, while the European was paying on an average of thirty-three cents and the German was only called on to pay nineteen cents. Between 1900 and 1909 the population of the United States increased seventy-three per cent., while the fire loss increased 134 per cent."

SEVERE HOSE SPECIFICATIONS.

The following letter has been received from a dealer in fire hose in a western town regarding the specifications for hose issued by the local fire department:

TO THE EDITOR OF THE INDIA RUBBER WORLD, Dear Sir:—The specifications for fire hose issued by the local fire department state that the hose must be put under a pressure test of 400 pounds to the square inch, after which one 50 foot length shall be cut in two, 25 feet from the coupling, and if same shows corrugation all of the hose must be rejected. We do not consider this a fair proposition to the manufacturer, and would like your opinion on it. Is it not a fact that if hose does not show some corrugation after being under a 400 pounds pressure, it is reasonable to suppose that the tube has been over-vulcanized for the purpose, and that, therefore, it will not give as good service as hose that showed some corrugation at the time it was cut? And, furthermore, what hose shows after 400 pounds is no criterion, because it is practically impossible for the hose to be used at a fire under as high pressure, 200 pounds or a little more being the greatest possible pressure that could be put on a 2 $\frac{1}{2}$ -inch hose by an engine at a fire. We submit this to you and would like your opinion, recognizing that you are an authority in the matter.

W. A. C.

THE RUTHERFORD RUBBER MANUFACTURING CO. MAKING TIRES.

The Rutherford Rubber Co., whose factory is located at Rutherford, New Jersey, has, within the short time it has been in the tire business, built up a very creditable trade. The factory is now running a day and night shift, turning out 200 tires a day, and when the new big calender ordered from the Farrel Foundry & Machine Co. is delivered—which will probably be within the next two weeks—the capacity will be raised to 300 tires a day. The tires made by the company are known as the "Sterling"; they are made both in straight wall and in quick detachable clincher type. The company makes an anti-skid tire known as the "Sterling Spur" tread, and has an application in the patent office covering a new extra heavy anti-skid tire. The "Sterling" blue inner tubes and gray inner tubes are also made at the Rutherford factory. These tubes are seamless throughout, being rolled from a single piece of rubber vulcanized solidly throughout, then spliced by vulcanization instead of by the acid cement cure. The blue tubes are covered with a blue gum layer to keep out light rays, and are also impregnated with flour of mica, which acts as a non-conductor of heat.

Another specialty of the Rutherford Company is the "Sterling" red backed hoof pad, the distinguishing feature of which is the fact that the heel is vulcanized on to the fibre back.

The officers of the company are: Charles Austin Bates, president; Spencer Welton, vice-president; J. A. Miller, treasurer; Frank DeWitt, secretary.

An interesting feature of the Rutherford Company's work is the issue from time to time of a little magazine called "The Sterling Spur," which, while primarily intended to exploit the company's tires and hoof pads, at the same time, contains a deal of entertaining reading. The quality of this reading will be readily inferred from the fact that the president, Charles Austin Bates, contributes to the magazine very frequently. He probably is the best known writer on advertising and other business problems in the country.

TRADE NEWS NOTES.

The Walpole Rubber Co., 185 Summer street, Boston, recently opened a store at 757 Boylston street, for the distribution of its tires, made under the famous Bailey tread patent.

The Elwell Rubber Manufacturing Co., 170 Summer street, Boston, manufacturers of Panther heels, recently acquired the former works of the Plymouth Rubber Co., Stoughton, Massachusetts, the Plymouth Rubber Co. having moved its business to its new factory at Canton, Massachusetts.

The Corona Rubber Co., Montreal, Canada, has been absorbed by the Columbus Rubber Co., of that city.

The factory of the Interstate Rubber Co., South Norwalk, Connecticut, was badly damaged by fire on May 4. The fire occurred in the forenoon in a room containing 120 men and women, all of whom fortunately escaped with the exception of one boy, who was painfully but not fatally burned in his attempt to fight the flames. It is supposed that the fire originated in a can of cement and the large amount of inflammable material made its progress extremely rapid. The damage was estimated at \$15,000.

The company will not resume operations in South Norwalk, but expects to move to Springdale, a suburb of Stamford, Connecticut.

All those people who have reason to desire to keep out of the way of the police of Newark, New Jersey, will be sorry to learn that the bicycles in use in the police department of that alert city have all been equipped with Fisk tires.

The American Rubber Co. will build, this summer, a two-story brick administration building at a cost of about \$30,000.

J. W. Coulston & Co., of New York, importers and manufacturers of dry paints and colors, recently moved to 80 Maiden Lane, where they have larger and more commodious quarters.

The executive offices and New York showrooms of the H. W. Johns-Manville Co., manufacturers of asbestos, magnesia and electrical supplies, have been moved from 100 William street, where they have been located for the past fifteen years, to the new twelve-story "H. W. Johns-Manville Building," Madison avenue and Forty-first street, New York City.

The Manufactured Rubber Company has declared a regular quarterly dividend of 1½ per cent. on preferred stock, payable June 1.

In order to accommodate the very large increase in the volume of its general business, the Loewenthal Company of New York has just taken a long time lease on an exceptionally commodious warehouse in Akron, Ohio. The building contains about 30,000 square feet, all on one floor. It has three team doors for loading and unloading, also five doors for the loading and unloading of cars. There is trackage for the entire length of the building—340 feet.

The Connecticut Mills Co., Danville, Connecticut, are completing the installation of their latest addition of looms and other equipment, which fills to its capacity their mill No. 1, and partly fills mill No. 2 recently added. They will proceed now with a complete equipment of mill No. 2. This mill has had an unusually fortunate record, due to the fact that all its officers are experienced in the business and familiar with the peculiar technical requirements of the product they manufacture, namely, auto tire fabrics. They also have an extensive acquaintance among tire manufacturers.

Mr. Tracy S. Lewis, treasurer of the Beacon Falls Rubber Shoe Co. (Beacon Falls, Connecticut), is president and treasurer of the Connecticut Mills Co.; Mr. R. J. Caldwell, vice-president; William B. Fittz, secretary and manager, and Messrs. R. J. Caldwell & Co., 374-378 Broadway, New York, selling agents.

The United States Rubber Co. has organized a new distributing agency under the name of The Hub Rubber Co., with George

H. Mayo, of the firm of W. F. Mayo & Co., as president and treasurer. This new company will have two distributing points—one at 174 Congress street, Boston, and the other at 60 Thomas street, New York. It will be devoted to the distribution of the "Hub" brand of rubbers, made by the Boston Rubber Shoe Co.

The Gorham-Revere Rubber Co., which has offices in San Francisco, Seattle, Spokane, Los Angeles and other points on the Pacific Coast, has recently opened a new office in Sacramento, California.

The Fisk Rubber Co., Chicopee Falls, Massachusetts, has recently opened its new Pacific coast headquarters on Van Ness avenue, San Francisco, California. The building is two stories in height, of reinforced concrete, fronting 50 feet on Van Ness avenue, 150 feet on Austin avenue, with an "L" 25 feet on Pine street. The salesrooms, general and private offices, are on the main floor, which is finished in mahogany, with the walls artistically decorated. The basement and second story of the main building are used for storage and stock purposes. The main floor is used for changing tubes and cases, and the second floor for vulcanizing and repairing, with the most modern and complete equipment for handling any make of tire.

The Fisk direct branches in Seattle, Portland (Oregon) Fresno, Sacramento and Los Angeles are all included in the Pacific coast territory, with headquarters at San Francisco.

At a recent non-stop run made at Oakland, California, by the Warren car, the equipment consisted of Fisk tires, and during the entire run of 17,800 miles, covering 49 days, only seven casings were used, giving an average of over 10,000 miles of service for each casing.

THAT RUBBER FROM KELP.

We mentioned in our issue of October last the prospectus issued by the National Rubber Co. (not the company of Bristol, Rhode Island, but a Pacific Coast company) setting forth its expectations of producing much rubber, and incidentally of making a great deal of money from kelp. Their prospectus was not, on the face of it, one to promote enthusiasm among the initiated, but the company—which has since changed its name to the National Pacific Rubber Co.—has evidently progressed far enough to begin the equipment of a factory, for we read in the San Pedro, Cal., "News," of recent date, that the building formerly occupied by a canning company at Terminal is being equipped for the new rubber company. The paragraph proceeds as follows:

"The manager says they will manufacture some goods within thirty days. They will make crude rubber from kelp, also iodine, potash and fertilizer. They have big scows by means of which the kelp is gathered, one of which is rigged with a large cutter, similar to that of a mowing machine. The company expects to run three eight-hour shifts, and to consume sixty tons of kelp per day. They intend to put in vats, furnaces and driers. There is a good wharf attached to the mill, and therefore good facilities for shipping."

So manufacturers who have been waiting patiently for kelp-rubber need now wait no longer.

PIONEER PRINTERS ON RUBBER SURFACES.

J. C. Milne & Co., located at 244 Fourth avenue, New York City, inaugurated the process of printing patterns on rubber surfaces in England fifteen years ago. Three years ago Milne & Co. introduced the process into this country and are said to have developed a most satisfactory line of business in the domestic rubber trade.

The Essex Rubber Co. (Trenton, New Jersey) are sending out for a souvenir, a heart shaped eraser with the inscription on it, "Trenton, the heart of New Jersey. Famed for its great industries in clay, iron and rubber and its political freedom." It is an excellent bit of advertising.

NEW INCORPORATIONS.

ACTON TIRE REPAIR Co., May 13, 1912; under the laws of New York; authorized capital, \$3,000. Incorporators: Patrick Curry, William Koopman and Lawrence Kerrigan, 759 Seventh avenue, New York. Location of principal office, New York.

Atlas Rubber Co., May 3, 1912; under the laws of Illinois; authorized capital, \$2,000. Incorporators: Frank C. Rathje, 411 Roanoke building, Chicago, Illinois; F. W. Roepsterff, Jr., and John H. Hoglund. To manufacture rubber goods.

Dual Wheel Co., April 19, 1912; under the laws of New York; authorized capital, \$300,000. Incorporators: Frederic B. Cochran, 81 Broadway, Alexander Dow, 104 West Forty-second street, and Cuthbert W. Jewell, 2 Rector street, all of New York. Location of principal office, New York. To manufacture wheels and other parts of motor trucks.

Eclipse Tire and Rubber Co., April 5, 1912; under the laws of New York; authorized capital, \$50,000. Incorporators: Simon I. Schwartz, 347 Fifth avenue; H. Silverman, 256 West Ninety-seventh street, and A. Bloomberg, 5 Beekman street, all of New York. Location of factory, Jersey City, New Jersey. To manufacture tires.

Emery & Marshall Co., May 8, 1912; under the laws of Massachusetts; authorized capital, \$75,000. Incorporators: Harry R. Emery, Sherman H. Marshall, both of Haverhill, Massachusetts, and Adolph A. Rosenbush, 135 Thorndike street, Brookline, Massachusetts. To manufacture, buy and sell boots, shoes and other kinds of footwear.

The B. F. Goodrich Co., May 2, 1912; under the laws of New York; authorized capital, \$45,000,000. Incorporators: Bertram G. Work and Charles B. Raymond, both of Akron, Ohio, and David M. Goodrich, 25 Broad street, New York. Location of principal office, New York. To manufacture rubber goods, taking over The B. F. Goodrich Co., of New York and the B. F. Goodrich Co., of Ohio.

International Asbestos Co., May 1, 1912; under the laws of Wisconsin; authorized capital, \$10,000. Incorporators: Fred J. Turgeon, Marie J. Turgeon and Edward J. Gottsacker.

Kingston Rubber Brush Co., May 9, 1912; under the laws of New York; authorized capital, \$150,000. Incorporators: Walter H. Clarke, John M. Lester and Samuel Bernstein, all of Kingston, New York. Location of principal office, Kingston, New York.

Majestic Coat Co., April 20, 1912; under the laws of New York; authorized capital, \$2,500. Incorporators: Solomon Gross, 404 Dumont street; Barnett Sherman, 1703 Park place, both of Brooklyn, New York, and Morris J. Fassler, 45 Willett street, New York. Location of principal office, New York. To manufacture raincoats, etc.

Never Puncture Tube and Tire Co., April 26, 1912; under the laws of Delaware; authorized capital, \$1,500,000. Incorporators, E. E. McWhiney, William J. Maloney, and Norman P. Coffin, all of Wilmington, Delaware.

Polack Tyre and Rubber Co., May 3, 1912; under the laws of New York; authorized capital, \$700,000. Incorporators: Max Polack, Adelbert Hanschild and Hugo Hoffstaedter, all of corner Broadway and Fifty-ninth street, New York. Location of principal office, New York.

Sewell Cushion Wheel Co., April 23, 1912; under the laws of Maine; authorized capital, \$300,000. Incorporators: E. Maynard Thompson, Augusta, Maine, and I. S. Kearney. To manufacture, buy, sell and deal in rubber and other tires for automobiles, etc. Factory at Detroit, Michigan.

Trojan Rubber Co., April 18, 1912; under the laws of Connecticut; authorized capital, \$50,000. Incorporators: Everett

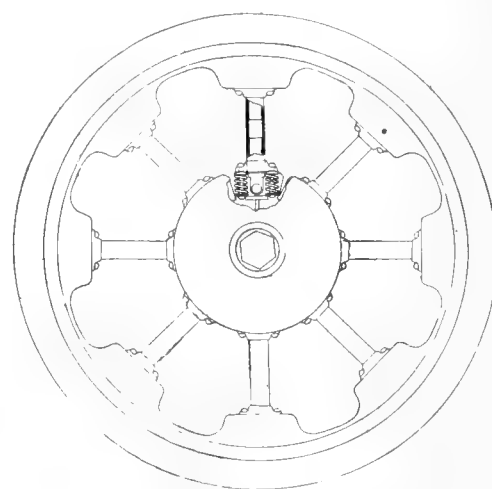
G. Hoffman, New Britain, Connecticut; Chas. F. Waterbury and E. H. Johnson, both of Stamford, Connecticut.

Western Rubber-Sales Company, May 9, 1912; under the laws of Wisconsin; authorized capital, \$25,000. Incorporators: B. F. Crandall, Mary E. Lunn and T. P. Hardy.

AN AUTO WHEEL WITH SPRINGS.

THE Standard Resilient Wheel Co., 62 Reade street, New York, has been at work for some time on an automobile wheel in which the resiliency is to be provided by steel springs in place of pneumatic tires. The wheel is made entirely of steel but has a solid rubber tire. The resiliency, which it is claimed equals fully one inch (which is considerably in excess of the resiliency of the pneumatic tire) comes from the constant play when the car is in motion of 32 steel springs.

There are 8 hollow steel spokes, at each end of which are two steel springs. Connected with these springs is a piston



STANDARD RESILIENT WHEEL

which plays in the hollow spoke for about half its length. The accompanying cut shows two of these springs at the inner end of the spoke. There are two similar springs at the outer end where the spoke meets the rim. The wheel is so constructed that when the car is at rest the

wheel is rigid, and none of the springs are extended; but when the car is in motion the springs yield to every obstacle and absorb the natural jar and jolt of rough roadways. Not only are the springs directly over the point of contact affected, but all the 32 springs are constantly at work contributing to the general resiliency of the wheel.

The advantage claimed for this wheel is the avoidance of all trouble and annoyance, and the saving of about half the expense of the pneumatic tire; as with this wheel a solid rubber tire is good for twice the service that it would give on an ordinary wheel. While the first cost of this wheel is greater than that of the ordinary wheel, it is claimed that this extra cost will be more than balanced by the extra service of the first two tires used upon the wheel.

This Standard wheel has been given a great many tests in the vicinity of New York but on June 10 a Thomas car, equipped with four of these wheels, will start for Chicago and other points in the West on a six weeks' trying-out trip.

THE fire at the South Boston warehouse of the American Wax Co., which occurred on May 4, did not interfere with the ability of that company to make its usual deliveries. This was an extra warehouse, kept only to supply local rush orders and for export orders that could not wait for the regular sailings of Baltimore steamers. The company immediately secured the three buildings formerly occupied by the Farrington Co., in Jamaica Plain, which gives it twice the store area which it previously had and within a week's time it had a new supply on hand sufficient for any requirements.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED APRIL 2, 1912.

- N**O. 1,021,783. Wheel rim for pneumatic tires. C. G. Kleinschmidt, Herne, Germany.
 1,021,816. Outer cover for pneumatic tires. J. C. Barker, Leeds, England.
 1,021,891. Obstetrical pad. J. D. Robertson, Paducah, Ky.
 1,021,983. Cushion tire. A. Hajos, Chattanooga, Tenn.
 1,022,076. Stamping device. W. J. Grotenhuis, Chicago, Ill.
 1,022,095. Garment. C. R. Leonard, New Rochelle, N. Y.
 1,022,127. Tire. E. Dettelbach, Cleveland, Ohio.
 1,022,141. Bottle, jar and the like and stopper therefor. D. Hurst and H. K. Bridger, London, England.
 1,022,220. Resilient tire. G. S. Adams, Seaville, N. J., assignor to Eureka Double Resilient Tire Mfg. Co., Camden, N. J.
 1,022,248. Golf ball. P. A. Martin, Birmingham, and J. Stanley, Sparkhill, near Birmingham, England.
 1,022,289. Tire vulcanizing repair apparatus. C. F. Adamson, East Palestine, Ohio.
 1,022,333. Armored tire. V. A. Rouilliard, Fall River, Mass.
 1,022,338. Manufacture of isoprene. O. Silberrad, Buckhurst Hill, England.
 1,022,339. Game apparatus. J. A. Sloan, Seattle, Wash.
 1,022,369. Vehicle wheel. G. B. Lambert, New York.

Reissues.

- 13,393. Fabric and yarn therefor. A. de Laski, Weehawken, and P. D. Thropp, Trenton, N. J.

Trade Marks.

- 54,232. Boston Rubber Shoe Co., Boston, Mass. The word *Hub* (enclosed). For rubber boots and shoes.
 54,233. Boston Rubber Shoe Co., Boston, Mass. The word *Hub*. For rubber boots and shoes.
 56,709. W. T. Coleman, Boston, Mass. The word *Amax*. For compounding ingredient.
 58,673. Federal Rubber Mfg. Co., Cudahy, Wis. The word *Federal*. For tires and accessories.
 60,663. Lanman & Kemp, New York. Three *B's* in a diamond. For ice-bags, hot water bottles, etc.

ISSUED APRIL 9, 1912.

- 1,022,566. Rubber shoe. J. H. Roedding, Berlin, Ontario, Canada.
 1,022,658. Tire guard. C. Dabelstein, Detroit, Mich.
 1,022,689. Resilient tire. H. A. Meinhardt, Pittsfield, Mass.
 1,022,735. Resilient tire. E. E. Hoff, San Rafael, Cal.
 1,022,754. Spring wheel for vehicles. A. F. Priest, Chicago, Ill.
 1,022,842. Detachable rim for resilient tires. J. W. Hall and C. Baynes, London, England.
 1,022,856. Tire. F. Marinics, Expend, Pa.
 1,022,887. Wheel. H. O. Shockley, Darlington, Wis.
 1,022,920. Brush. R. L. Anderson, Plant City, Fla.
 1,022,966. Resilient tire. H. B. Montgomery, Harrisburg, Pa.
 1,022,994. Waterproof boot. G. R. Wyman, assignor to C. S. Bird—both of East Walpole, Mass.
 1,022,997. Diving suit. C. Anderson and M. Silver, Passi, Philippine Islands.
 1,023,010. Spring wheel. H. E. J. Foerster, St. Louis, Mo.
 1,023,098. Spring wheel. L. Schilling, Maestown, Ill.

Trade Marks.

- 60,308. The Star Rubber Co., Akron, Ohio. Black star with letters *R* *Co* intertwined with *S*. For chair tips.
 60,309. The Star Rubber Co., Akron, Ohio. Black star with letters *R* *Co* intertwined with *S*. For tobacco pouches.
 60,519. Barrett Manufacturing Co., New York. The word *Carbosota*. For coal-tar oils.

ISSUED APRIL 16, 1912.

- 1,023,142. Fuse. H. E. Ellsworth, assignor to The Ensign-Bickford Co.—both of Simsbury, Conn.
 1,023,344. Elastic tire for vehicle wheels. C. F. Waldman, Los Angeles, Cal.
 1,023,358. Face mask. L. M. Bender, Seattle, Wash.
 1,023,380. Aquatic life-preserver. E. V. Henderson, Leavenworth, Kan.
 1,023,398. Fabric coating machine. W. Salisbury, Stoughton, Mass.
 1,023,414. Armor for vehicle tires. J. B. Coonrod, Rock Rapids, Iowa.
 1,023,416. Resilient wheel. D. L. Crosbie, Sacramento, Cal.
 1,023,454. Pneumatic tire for vehicle wheels. E. E. Black, Detroit, Mich.
 1,023,497. Resilient vehicle wheel. F. H. Beamer, Buffalo, N. Y.
 1,023,508. Decorating machine. E. Delafond, Mexico, Mexico.

- 1,023,516. Pneumatic wheel. W. W. Guest, Alameda, Cal.
 1,023,554. Tire. M. E. Davis, Canastota, N. Y.
 1,023,574. Car wheel. F. Linblad, New York.
 1,023,580. Antiskid device. D. J. Martin, New York.
 1,023,581. Swimming mitt or glove. T. L. Monaghan, New York.
 1,023,666. Cover for pneumatic tires. L. Lias, Paris, France.
 1,023,672. Nursing bottle attachment. G. Moran, Thomaston, Me.
 1,023,693. Infant pacifier. J. Walsh and R. D. Kay, London, England.
 1,023,712. Tire for vehicle wheels. J. Balazs, Michel, British Columbia, Canada.
 1,023,727. Vulcanizer. C. C. Evans, Minneapolis, Minn.
 1,023,728. Pneumatic tube for vehicle and other wheels. C. D. Galvin, Merchantville, N. J.
 1,023,729. Manufacture, molding and remolding of india-rubber goods. T. Gare, New Brighton, England.
 1,023,733. Vehicle tire. J. E. Goodman and E. S. Ruff, Stockton, Cal.
 1,023,793. Spring tire. Emanuel Steimle, Salt Lake City, Utah.
 1,023,779. Vehicle tire. S. T. Allen, assignor to Triplex Tire Co.—both of Detroit, Mich.

Trade Marks.

- 61,437. C. A. Daniel, Philadelphia, Pa. Portrait of a Quaker in letter *Q*. For rubber and pneumatic tires.

ISSUED APRIL 23, 1912.

- 1,023,904. Ball. H. R. Wemple, Elizabeth, N. J.
 1,024,040. Fabric constructed of laminated cohesive interwound members. L. A. Subers, Cleveland, Ohio.
 1,024,042. Elastic tire. A. W. Torkington, Purley, England.
 1,024,078. Tire repair device. C. F. Jenkins, Washington, D. C.
 1,024,090. Elastic tire. T. B. Marchant, A. G. Marchant and G. P. Marchant, London, England.
 1,024,152. Method and means for producing dental plates. H. J. Smith, assignor to H. D. Justi & Son—both of Philadelphia, Pa.
 1,024,153. Dental plate. H. J. Smith, assignor to H. D. Justi & Son—both of Philadelphia, Pa.
 1,024,154. Vehicle wheel. R. T. Smith, Warrington, England.
 1,024,189. Rubber tire for vehicles. A. Dow, New York.
 1,024,206. Elastic webbing and method in weaving the same. W. Kops, New York.
 1,024,207. Elastic fabric. W. Kops, New York.
 1,024,227. Carter wheel. J. I. Rocic, Hoboken, N. J.
 1,024,336. Resilient tire. N. Harris, Indianapolis, Ind.
 1,024,382. Tire for automobiles. O. H. Weckesser, Ross township, Allegheny county, Pa.
 1,024,431. Vehicle tire. T. H. Banks, San Antonio, Tex.
 1,024,458. Tire protector. J. Savoie, Central Falls, R. I.

Design.

- 42,423. Elastic tire for vehicles. W. F. Pfeiffer, assignor to The Miller Rubber Co.—both of Akron, Ohio.

Trade Marks.

- 52,892. Detroit Insulated Wire Co., Detroit, Mich. The words "*Detroit*" *Rubber Covered Wires* in a block. For insulated electric wires.
 54,548. Boston Rubber Shoe Co., Boston, Mass. The word *Trojan*. For rubber boots and shoes, etc.
 59,235. Morris Rosenthal, Buffalo, N. Y. The letters *N O A L* in a divided circle. For rubber tires.
 59,777. The Brown Shoe Co., St. Louis, Mo. The word *Mother's*. For women's rubber shoes.
 61,349. Wright & Ditson, Jersey City, N. J. Portrait of a baby. For golf balls.

ISSUED APRIL 30, 1912.

- 1,024,506. Combination of reflecting means for enabling one to see the back of the head or neck. G. E. Graham, Candor, N. Y.
 1,024,528. Tension mechanism for looms. E. W. Sibley, Chelsea, Mass.
 1,024,563. Hat pin protector. E. B. Eckhart, Philadelphia, Pa.
 1,024,604. Hose making machine. S. J. Sill, Buffalo, N. Y.
 1,024,746. Demountable wheel rim. H. H. Replogle, Montreal, Quebec, Canada.
 1,024,753. Resilient tire. J. Thissen, Kane, Pa.
 1,024,847. Teat cup. A. Gillies, Heidelberg, Victoria, Australia, assignor to D. H. Burrell & Co., Little Falls, N. Y.
 1,024,936. Apparatus for use in reclaiming vulcanized rubber waste. C. S. Heller, assignor to Moore Architectural and Engineering Co.—both of Akron, Ohio.
 1,024,937. Process for reclaiming vulcanized rubber waste. C. S. Heller, assignor to Moore Architectural and Engineering Co.—both of Akron, Ohio.
 1,025,000. Tire filling compound and process involving the same. H. I. Manley, Kansas City, Mo.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application.)

- 434,767 (October 2, 1911). C. Kéque. Air chamber for elastic tires.
 434,841 (September 30). Moore Architectural & Engineering Co. Recovery of rubber from waste.
 434,875 (September 29). J. F. Casteran. Air chamber for elastic tires.
 434,897 (October 4). W. W. Wiggins. Vehicle tire.
 434,904 (December 9, 1910). C. Morel. Elastic tire for road vehicles.
 434,911 (December 10). P. Mercier. Pneumatic tire for automobiles, cycles and other vehicles.
 434,930 (October 2, 1911). M. L. Coste. Pneumatic elastic wheel for automobiles and other vehicles.
 434,960 (October 6). C. Mercanton. Anti-skid protector for elastic tires.
 434,987 (October 7). D. Ponchaur. Protective cover for pneumatic tires.
 434,989 (October 7). Farbenfabriken Company (formerly F. Bayer & Co.). Process for production of substances resembling rubber.
 435,076 (October 9). Farbenfabriken Company (formerly F. Bayer & Co.). Process for the production of rubber, its homologues and analogues.
 435,185 (October 9). H. B. Montgomery. Elastic tire for vehicle wheels.
 435,383 (December 22, 1910). Etablissements Bergougnan. Process and apparatus for the vulcanization with heat of pneumatic anti-skid covers, with leather bands.
 435,460 (October 20, 1911). Coir Tire Co., Ltd. Process and apparatus for the manufacture of elastic tires.
 435,479 (October 4). Doty & Shaw. Improvements in elastic tires.
 435,494 (October 16). The Snap-on Tire Chain Co. Anti-skid device for automobile wheels.
 435,516 (October 20). A. B. Heimbach. Appliance for fixing movable rubber heels on shoes.
 435,558 (October 23). Eperjesy, Bajusz & Baranyi. Protective cover for elastic tires.
 435,564 (October 23). Vereinigte Schwarzfarben & Chemische Werke Aktiengesellschaft. Process and machine for fixing anti-skid rivets in rubber tires and protective covers.
 435,607 (October 24). F. Knipp. Movable rubber sole for house boots, slippers and similar footwear.
 435,623 (October 25). M. Larmet. Divided pneumatic tire for automobiles.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingénieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with dates of validity).

- 246,653 (from November 14, 1909). British Murac Syndicate, Ltd., and M. M. Dessau, London. Machine for washing rubber, gutta percha, balata and like substances.
 246,443 (from January 11, 1910). Dr. Leon Lilienfeld, Vienna. Process for the manufacture of plastic masses.
 246,768 (from February 17, 1911). W. Butterfield and T. A. Jones, Cardiff, England. Tires composed of blocks of rubber with intervening sections of steel.
 246,895 (from March 19, 1911). Gaston Rose, Paris. Apparatus for the vulcanization or repair of rubber tires.
 247,217 (from May 7, 1911). A. Olier & Co., Clermont-Ferrand, France. Apparatus for vulcanizing protective covers of pneumatic tires.

THE KINGDOM OF BELGIUM.

PATENTS PUBLISHED.

- 242,530 (1912). Farbenfabriken, vorm. F. Bayer & Co., Elberfeld, Germany. Process for the production of erythrene and isoprene.
 242,556 (1912). Farbenfabriken, vorm. F. Bayer & Co., Elberfeld, Germany. Process for the production of erythrene and isoprene.
 242,441 (1912). H. Debaug, Avenue Montaigne, 32, Paris. Process and apparatus for the purification by osmosis of natural and regenerated rubber, and of other colloidal substances in a state of dissolution.

THE GREAT AMERICAN AIR CIRCUIT NEXT FALL.

AERIAL circuit races have been held in France, Germany and Great Britain with much acclaim and great success, particularly in France; but the Aero Club of America, with the assistance of various western clubs expects to hold a great international circuit in this country, next September, that will be more important in many ways than any of those held abroad. In the first place, it will be about 700 miles longer, as the proposed route is 1,810 miles. Then the prizes will aggregate about \$100,000, including the grand prize of \$25,000.

The international race for the Gordon-Bennett Aviation Trophy will take place near Chicago early in September, and this will bring to our shores practically all the noted flyers of the world. This 1,800-mile international circuit will be held immediately thereafter, so that the same contestants can take part in both events. The circuit will start at Chicago, go north-

west to Milwaukee, thence southwesterly through Cedar Rapids and Des Moines to Omaha, thence southeast to Kansas City, and east through Jefferson City, St. Louis, and Indianapolis to Cincinnati; thence it will turn in a northerly direction and go through Columbus and Cleveland; thence west to Toledo, north to Detroit, and west again back to Chicago. The aero clubs of Illinois, Michigan, Milwaukee, Kansas City, St. Louis, Indiana, Cincinnati and Chicago will coöperate with the Aero Club of America.

The circuit will be divided into sections with intermediate controls. Each section will end at a large city where aviators will stop overnight. As aviators will be arriving at various hours one day and leaving the next, each city will practically have two full days of flying. Stops will be made also at intermediate cities, where there will be a "control" or station where aviators will land and stop for a limited time.

The circuit is to be open to licensed pilots of all nationalities who will be free from injunction under the Wright patents, arrangement having been made with the Wright Company to this effect.

Among the prizes proposed to be given are: For first and second machines to reach the end of each section; for the American built and flown machine first to complete the circuit; for minimum horse power required to complete the course; first to complete course with a passenger; best wireless demonstrations; greatest number of wireless messages delivered; best maps and topographical descriptions, drawn en route; first aeroplane fitted with automatic stabilizer to complete the circuit; most completely equipped machine to complete circuit; the machine completing the circuit having intact most of its officially stamped parts.

In drawing the regulations to govern this event, the committee in charge will endeavor to make it a conclusive test of everything that goes to make aeroplaning practicable. The program outlined above shows that the circuit will include many useful and interesting features never before embraced in a similar event. Especial efforts will be made to bring out the various qualities of the aeroplane which are of practical use.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta-percha for the month of March, 1912, and the first nine months of five fiscal years, beginning July 1:

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
March, 1912	\$219,274	\$93,247	\$690,822	\$1,003,343
July-February	1,491,121	1,139,181	4,640,177	7,270,479
Total, 1911-12	\$1,710,395	\$1,232,428	\$5,330,999	\$8,273,822
Total, 1910-11	1,511,975	1,801,977	4,485,644	7,789,496
Total, 1909-10	1,416,655	1,499,770	3,510,618	6,427,043
Total, 1908-09	1,053,758	1,071,489	2,805,914	4,931,161
Total, 1907-08	1,040,985	1,342,965	2,802,371	5,186,321

The above heading "All Other Rubber," for the month of March, 1912, and for the first nine months of two fiscal years, beginning July 1, includes the following details relating to tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
March, 1912	values \$228,098	\$44,548	\$272,646
July-February	1,641,373	349,372	1,990,745
Total, 1911-12	\$1,869,471	\$393,920	\$2,263,391
Total, 1910-11	\$1,325,903	\$411,801	\$1,737,704

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

Review of the Crude Rubber Market.

WHILE the month of April was chiefly noticeable for the reaction in the London price of fine Pará from the relatively high level of 5s. 2d. on March 27 to 4s. 8½d. on April 27, the market during May varied but little from the lower basis thus established. An evident desire was manifest on the part of both sellers and buyers to await developments. Prices ranged during the month between 4s. 8d. and 4s. 7¼d., standing at time of writing (27) at 4s. 7½d.

Those inclined to take an optimistic view of the situation gave prominence to the fact that the visible supply of all kinds of rubber on April 30 was only 10,883 tons, as compared with 14,703 tons at the end of April, 1911. Separate figures showed Pará grades 7,608 tons against 11,863 tons last year, and other grades 3,275 tons against 2,840 tons in 1911; the reduction having thus been practically in Pará grades. The fact that 5,253 tons of plantation rubber had passed through the London auctions during the first four months of 1912, as compared with 3,175 for the corresponding period of 1911, was regarded as indicating the influence of a large and increasing consumption.

Notwithstanding these favorable statistical conditions, the evident decision of consumers to more or less use up their holdings of rubber before entering the market again, caused the bidding at the London auction of May 14 to be noticeably lacking in spirit. As a result, however, of importers meeting these conditions, the 635 tons offered were all placed. The later prices were better than those current at the opening of the sale, but the average fall was about 1¼d. per pound. Owing to the Whitsuntide holidays occurring during the last week in May the second May sale amounting to 350 tons took place on 21st. Cable reports indicate that 135 tons were sold at an average fall of ½d. to 1d. per pound.

Following the lead of London, the New York market was quiet throughout the month. The movements of consumption are being closely watched, as indicating the future tendency of the market.

The subjoined quotations for African and some other varieties are to a great extent nominal, owing to the lack of assortment displayed by existing stocks.

Demand was fairly good at the Rotterdam sale, of 3rd; prices only giving way slightly, owing to the firmness of holders. Prices at the later continental auctions fell in sympathy with London movements. At Amsterdam on 10th, 19 tons (principally *Hevea*) were sold at an average of 8½ per cent. below the nominal valuations.

On 22nd, 107 tons Congo were sold at the Antwerp sales, with a reduction equaling about 2d. per pound. Cable advices of the Havre sale of 23rd report a fall, in harmony with the features of the other recent continental auctions.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and May 29—the current date.

PARÁ.	June 1, '11.	May 1, '12.	May 29, '12.
Islands, fine, new	96@ 97	110@111	105@106
Islands, fine, old	98@100	112@113	107@108
Upriver, fine, new	99@100	112@113	109@110
Upriver, fine, old	105@106	115@116	112@113
Islands, coarse, new	58@ 59	63@ 64	57@ 58
Islands, coarse, old			
Upriver, coarse, new	82@ 83	93@ 94	89@ 90
Upriver, coarse, old	84@ 85		
Cameté	84@ 85	67@ 68	65@ 66
Caucho (Peruvian) ball	66@ 67	93@ 94	87@ 88
Caucho (Peruvian) sheet.....	66@ 67		

PLANTATION PARA.

Fine smoked sheet	126@127	118@119
Fine pale crepe	114@115	125@126
Fine sheets and biscuits.....	119@120	114@115

CENTRALS.

Esmeralda, sausage	78@ 79	92@ 93	82@ 83
Guayaquil, strip			
Nicaragua, scrap	77@ 78	91@ 92	80@ 81
Panama			
Mexican, scrap	77@ 78	91@ 92	81@ 82
Mexican, slab			
Mangabeira, sheet			
Guayule	48@ 49		55@ 56
Balata, sheet		85@ 86	89@ 90
Balata, block			55@ 56

AFRICAN.

Lopori ball, prime	95@ 96		
Lopori, strip, prime.....			
Aruwimi	94@ 95		
Upper Congo, ball, red.....	95@ 96		107@108
Ikelemba			
Sierra Leone, 1st quality.....	85@ 86		94@ 95
Massai, red	85@ 86		95@ 96
Soudan, Niggers			
Cameroon, ball	56@ 57		66@ 67
Benguela	65@ 66		
Madagascar, pinky	77@ 78		
Accra, flake	27@ 28		27@ 28

Africans are neglected owing to low prices ruling for Pará.

EAST INDIAN.

Assam	83@ 84		
Pontianak	6@6½		5½@5¾
Borneo			

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine	4\$550	Upriver, coarse	4\$350
Islands, coarse	2\$400	Upriver, fine	5\$650
		Exchange	16 3/16d.

Latest Manáos advices:

Upriver, fine	5\$450	Exchange	16 3/16d.
Upriver, coarse	4\$050		

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows:

"The money market in regard to commercial paper has varied but little in May from the conditions prevailing for the past three months, there being still a good demand for the best rubber names at 4½@ 5 per cent., and 5½@6 per cent. for those not so well known.

PRICES FOR APRIL (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine	\$1.12@1.18	\$1.18@1.45	\$2.58@2.92
Upriver, coarse .....	.92@ .96	.88@1.10	1.70@1.87
Islands, fine	1.10@1.14	1.12@1.35	2.45@2.78
Islands, coarse .....	.63@ .66	.60@ .63	1.07@1.15
Cameté .....	.66@ .70	.75@ .80	1.28@1.35

African Rubbers.

NEW YORK STOCKS (IN TONS).

April 1, 1911	98	November 1, 1911.....	45
May 1	98	December 1	60
June 1	90	January 1, 1912	58
July 1	90	February 1	150
August 1	90	March 1	90
September 1	112	April 1	80
October 1	67	May 1	62

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.					
	Fine and Medium.	Coarse.	Total 1912.	Total 1911.	Total 1910.
Stocks, March 31.....tons	99	11	110	396	280
Arrivals, April	1,183	512	1,695	663	536
Aggregating	1,282	523	1,805	1,059	816
Deliveries, April	1,005	487	1,492	498	673
Stocks, April 30.....	277	36	313	561	143

PARA.			ENGLAND.		
	1912.	1911.	1910.	1912.	1911.
Stocks, March 31.....tons	2,205	3,630	835	540	1,865
Arrivals, April	2,730	2,520	2,210	830	1,203
Aggregating	4,935	6,150	3,045	1,370	3,068
Deliveries, April	2,165	1,990	2,785	380	1,598
Stocks, April 30.....	2,770	4,160	260	990	1,470

	1912.	1911.	1910.
World's visible supply, April 30.....tons	4,982	7,069	3,058
Para receipts, July 1 to April 30.....	27,970	27,190	29,230
Para receipts of caucho, same dates.....	5,680	5,930	6,530
Afloat from Para to United States, April 30	334	283	125
Afloat from Para to Europe, April 30....	575	595	1,430

Rubber Stock at Para.

Stock for January 31 showed an increase caused by heavier arrivals, while that of February 29 shows a slight decrease. The stock of March 31 displayed a further reduction, while that of April 30 was about the same as a month earlier.

January 31, 1911.....tons	2,085	September 30, 1911.....tons	3,102
February 28	3,787	October 31	3,320
March 31	4,214	November 30	3,050
April 30	5,104	December 31	2,675
May 31	5,350	January 31, 1912	3,370
June 30	4,545	February 29	3,240
July 31	3,884	March 31	2,730
August 31	3,450	April 30	2,770

Rubber Receipts at Manaos.

DURING April and ten months of the crop season, for three years (courtesy of Messrs. Scholz & Co.):

FROM—	April.			July April.		
	1912.	1911.	1910.	1911-12.	1910-11.	1909-10.
Rio Pinús-Acre	251	457	376	8,758	9,517	9,481
Rio Madeira	373	288	269	3,653	2,984	3,328
Rio Juruá	645	400	463	3,679	3,798	4,083
Rio Javary-Iquitos	144	186	38	2,243	2,333	2,570
Rio Solimões	133	57	70	1,195	1,192	1,166
Rio Negro	199	126	40	621	494	584
Total	1,740	1,514	1,256	20,149	20,218	21,213
Caucho	974	889	1,022	4,443	4,532	6,209
Total	2,714	2,403	2,278	24,592	24,750	27,422

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are in some cases slightly lower.

	June 1.
Old rubber boots and shoes—domestic.....	9¼@ 9¾
Old rubber boots and shoes—foreign.....	9 @ 9½
Pneumatic bicycle tires	4½@ 4¾
Automobile tires	9 @ 9¼
Solid rubber wagon and carriage tires	9¼@ 9¾
White trimmed rubber	11 @ 11½
Heavy black rubber	4¾@ 5
Air brake hose	5½@ 5¾
Garden hose	1½@ 1¾
Fire and large hose	2½@ 2¾
Matting	7¾@ 1

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

July 7, 1911	4/2½	December 22, 1911	4/4
July 14	4/5½	December 29	4/3½
July 21	4/7	January 5, 1912	4/4½
July 28	4/8	January 12	4/5½
August 4	4/7½	January 19	4/5½
August 11	4/7½	January 26	4/8
August 18	4/7½	February 2	4/7
August 25	4/10½	February 9	4/6½
September 1	4/8½	February 16	4/6¾
September 8	4/9	February 23	4/7½
September 15	5/	March 1	4/7½
September 22	4/10½	March 8	4/9
September 29	4/8	March 15	4/10½
October 6	4/7	March 22	5/1½
October 13	4/5	March 29	4/11½
October 20	4/6½	April 5	4/11
October 27	4/4	April 12	4/11
November 3	4/3	April 19	4/10¼
November 10	4/4½	April 25	4/9
November 17	4/3	May 3	4/7½
November 24	4/3½	May 10	4/7½
December 1	4/4½	May 17	4/7¾
December 8	4/5½	May 24	4/7½
December 15	4/4½		

Liverpool.

WILLIAM WRIGHT & CO. REPORT [MAY 1]:

Fine Para.—The demand throughout the month has been dull; prices, after advancing to 5s. 0½d. [= \$1.23], have since declined to 4s. 7½d. [= \$1.125]. For the present, the demand from America has subsided, which is not surprising after the recent heavy purchases; shipments from here during the month are about 450 tons, and European manufacturers have adopted a waiting policy. Should a further decline take place a resumption of the demand is quite probable. Closing value: Hard Fine, 4s. 7½d. [= \$1.125]; Island, 4s. 7½d. [= \$1.125].

Amsterdam

JOOSTEN & JANSSEN report [May 10]:

As might be expected the prices paid in today's sale showed an average decline of about 8½ per cent. on valuations, which were based on 5s. 2½d. for first latex crepe and 4s. 10d. for hard fine Para. In spite of the relatively unsettled state of the market there was a very strong demand at the sale and all of the 19,000 kilos offered was sold, with the exception of 735 kilos gutta-percha. The average decline on the various descriptions was about 9 per cent. on Heveas, 5 per cent. on Ramburges and 6 per cent. on Castillos.

The next sale will take place on June 2.

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

MAY 5.—By the steamer *Denis*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	TOTAL.
Arnold & Zeiss.....	66,700	43,000	179,500	123,700=	412,900
New York Commercial Co....	55,600	25,000	62,900	45,600=	189,100
Henderson & Korn.....	90,600	13,100	28,700	7,800=	140,200
Meyer & Brown.....	44,600	21,100	31,900	400=	98,000
Robinson & Co.....	26,500	6,100			32,600
Total	284,000	108,300	303,000	177,500=	872,800

MAY 18.—By the steamer *Justin*, from Manáos and Pará:

Arnold & Zeiss.....	168,300	13,500	131,800	236,700=	550,300
New York Commercial Co....	50,900	34,500	73,000	23,100=	181,500
General Rubber Co.....	80,000	24,800	47,800	22,500=	175,100
Henderson & Korn.....	50,000	14,500	41,300	12,300=	118,100
Robinson & Co.....	34,000	7,300	22,000	19,900=	83,200
Meyer & Brown.....	14,800	8,800	4,100	33,600=	61,300
De Lagotellerie Co.....	2,500	300	19,200		22,000
Total	400,500	103,700	339,200	348,100=	1,191,500

MAY 21.—By the *Gregory* from Iquitos:

Thomsen & Co.....	18,300	1,100	4,200	5,800=	29,400
H. A. Astlett & Co.....	9,200	1,200	6,200	9,900=	26,500
P. C. Kuyper.....	1,800		300	7,400=	9,500
G. Amsinck & Co.....			300	6,200=	6,500
In transit				40,500=	40,500
Total	29,300	2,300	11,000	69,800=	112,400

MAY 25.—By the *Christopher* from Manáos and Pará:

Arnold & Zeiss.....	98,000	18,100	148,700	135,700=	401,500
Henderson & Korn.....	202,400	28,100	50,000	41,500=	322,000
Robinson & Co.....	15,400	300	5,800	4,500=	26,000
New York Commercial Co....	27,500	2,900	29,300	20,700=	80,400
General Rubber Co.....	32,500	11,000	28,900	3,300=	75,700
De Lagotellerie & Co.....	11,400	1,100	18,500		31,000
H. A. Astlett & Co.....	6,100	300	1,600	900=	8,900
G. Amsinck & Co.....	2,500		2,600	2,200=	7,300
Total	395,800	61,800	286,400	208,800=	952,800

PARA RUBBER VIA EUROPE.

	POUNDS.
APRIL 26.—By the <i>Colon</i> =Colon:	
General Rubber Co. (Fine).....	18,000
Raw Products Co. (Fine).....	30,000
New York Commercial Co. (Fine).....	34,000
Robinson & Co. (Fine).....	28,000
272,000	
MAY 6.—By the <i>Bahia</i> =Liverpool:	
Arnold & Zeiss (Fine).....	10,000
Raw Products Co. (Fine).....	4,500
14,500	
MAY 13.—By the <i>Carmania</i> =Liverpool:	
Raw Products Co. (Fine).....	11,500
11,500	
MAY 13.—By the <i>Amerika</i> =Hamburg:	
Ed. Maurer (Fine).....	28,500
28,500	
MAY 14.—By the <i>Lapland</i> =Antwerp:	
L. Blitz (Fine).....	13,500
13,500	
MAY 14.—By the <i>Saramaca</i> =Bolívar:	
Yglesias Lobo & Co. (Fine).....	5,500
Yglesias Lobo & Co. (Coarse).....	4,000
General Export Com. Co. (Fine).....	5,000
General Export Com. Co. (Coarse).....	6,000
American Trading Co. (Fine).....	2,500
23,000	
MAY 20.—By the <i>Celtic</i> =Liverpool:	
Robinson & Co. (Fine).....	34,000
General Rubber Co. (Fine).....	11,000
45,000	
MAY 21.—By the <i>Colon</i> =Mollendo:	
W. R. Grace & Co. (Fine).....	4,500
4,500	

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

	POUNDS.
APRIL 26.—By the <i>Colon</i> =Colon:	
G. Amsinck & Co.....	9,000
Piza Nephews & Co.....	6,000
Isaac Brandon & Bros.....	3,000
R. G. Barthold.....	2,000
Laurence Johnson & Co.....	2,000
Charles E. Griffin.....	1,500
Mecke & Co.....	1,500
Harburger & Stack.....	1,000
Roldau & Van Sickle.....	1,000
27,000	
APRIL 26.—By the <i>Chinese Prince</i> =Bahia:	
Adolph Hirsch & Co.....	89,000
J. H. Rossbach & Bros.....	5,000
94,000	
APRIL 27.—By the <i>Antilles</i> =New Orleans:	
Manhattan Rubber Co.....	11,000
Robinson & Co.....	5,000
Unknown.....	5,000
21,000	
APRIL 29.—By the <i>Pretoria</i> =Hamburg:	
Henderson & Korn.....	125,000
125,000	
APRIL 29.—By the <i>Mexico</i> =Frontera:	
Harburger & Stack.....	11,500
E. Steiger & Co.....	7,000
A. H. Reid & Co.....	3,500
22,000	
APRIL 30.—By the <i>Albion</i> =Colon:	
Maitland, Coppell & Co.....	30,000
A. Held.....	3,500
Caballero & Blanco.....	1,500
35,000	
APRIL 30.—By the <i>Vigilancia</i> =Tampico:	
Ed. Maurer.....	*100,000
New York Commercial Co.....	*34,000
Arnold & Zeiss.....	*25,000
For Europe.....	*135,000
*294,000	
APRIL 30.—By the <i>Minnetonka</i> =London:	
Arnold & Zeiss.....	22,500
22,500	
APRIL 30.—By the <i>El Sol</i> =Galveston:	
Continental-Mexican Rubber Co.....	*40,000
Charles T. Wilson.....	*10,000
*50,000	
MAY 1.—By the <i>Prinz Joachim</i> =Colon:	
G. Amsinck & Co.....	5,000
Dumarest Bros. & Co.....	3,500
J. Sambrada & Co.....	1,500
Roldau & Van Sickle.....	1,000
W. R. Grace & Co.....	1,000
A. Rosenthal & Sons.....	1,000
Suzarte & Whitney.....	1,000
14,000	
MAY 2.—By the <i>El Siglo</i> =Galveston:	
Continental-Mexican Rubber Co.....	*70,000
*70,000	
MAY 2.—By the <i>Comus</i> =New Orleans:	
Eggers & Heinlein.....	3,500
Unknown.....	10,000
13,500	
MAY 4.—By the <i>Matanzas</i> =Tampico:	
Ed. Maurer.....	*90,000
New York Commercial Co.....	*90,000
Arnold & Zeiss.....	*30,000
H. Marquardt & Co.....	*22,500
For Hamburg.....	*50,000
*282,500	
MAY 6.—By the <i>Vasari</i> =Bahia:	
J. H. Rossbach & Bros.....	50,000
Adolph Hirsch & Co.....	10,000
60,000	
MAY 6.—By the <i>Esperanza</i> =Frontera:	
Harburger & Stack.....	7,500
Meyer & Brown.....	4,000
General Export Comm. Co.....	4,500

H. Marquardt & Co.....	4,500
S. Steiger & Co.....	3,000
W. L. Wadleigh.....	2,000
Mecke & Co.....	2,000
Hermann Kluge.....	1,500
For Europe.....	9,000
38,000	
MAY 7.—By the <i>Batavia</i> =Hamburg:	
Arnold & Zeiss.....	13,500
Ed. Maurer.....	9,000
Raw Products Co.....	2,500
25,000	
MAY 7.—By the <i>Altai</i> =Colombia:	
G. Amsinck & Co.....	5,000
Laurence Johnson & Co.....	2,000
A. Angel & Co.....	1,500
Pablo Calvet & Co.....	1,000
9,500	
MAY 7.—By the <i>President Grant</i> =Hamburg:	
Meyer & Brown.....	*30,000
*30,000	
MAY 8.—By the <i>Togus</i> =Colombia:	
G. Amsinck & Co.....	9,000
I. Sambrada & Co.....	7,000
A. M. Capen's Sons.....	3,500
A. Held.....	1,000
20,500	
MAY 9.—By the <i>Panama</i> =Colon:	
G. Amsinck & Co.....	26,500
Isaac Brandon & Bros.....	5,500
Wessels Kulenkampf & Co.....	3,500
Hirz-L. Feltman & Co.....	2,500
Charles E. Griffin.....	2,000
40,000	
MAY 10.—By the <i>El Cid</i> =New Orleans:	
Manhattan Rubber Co.....	7,000
Robinson & Co.....	5,000
G. Amsinck & Co.....	3,500
Unknown.....	8,000
23,500	
MAY 13.—By the <i>Santiago</i> =Tampico:	
Arnold & Zeiss.....	*70,000
Ed. Maurer.....	*70,000
New York Commercial Co.....	*67,000
J. W. Wilson & Co.....	*45,000
For Hamburg.....	*45,000
*297,000	
MAY 14.—By the <i>Minnewaska</i> =London:	
Arnold & Zeiss.....	30,000
30,000	
MAY 14.—By the <i>Morro Castle</i> =Frontera:	
Harburger & Stack.....	3,500
E. Steiger & Co.....	2,500
H. Marquardt & Co.....	2,500
J. W. Wilson & Co.....	2,000
E. Nelson Tibbals & Co.....	2,000
George A. Alden & Co.....	1,000
For Europe.....	3,000
16,500	
MAY 15.—By the <i>Prinz August Wilhelm</i> =Colon:	
G. Amsinck & Co.....	11,000
Otto Gerdau Co.....	5,000
Maitland, Coppell & Co.....	5,000
A. Held.....	2,500
Pablo Calvet & Co.....	2,500
Wessels Kulenkampf & Co.....	2,000
New York Commercial Co.....	1,000
J. Sambrada & Co.....	1,000
Dumarest Bros. & Co.....	1,000
Gillespie Bros. & Co.....	1,000
32,000	
MAY 15.—By the <i>Texan</i> =Mexico:	
Charles T. Wilson.....	5,500
G. Amsinck & Co.....	3,500
George A. Alden & Co.....	3,000
Neuss Hesslein & Co.....	2,000
For Europe.....	13,500
27,500	
MAY 15.—By the <i>Antilles</i> =New Orleans:	
Eggers & Heinlein.....	4,500
Manhattan Rubber Mfg. Co.....	3,500
Meyer & Brown.....	2,500
George A. Alden & Co.....	2,000
Unknown.....	13,500
26,000	
MAY 16.—By the <i>El Dia</i> =Galveston:	
Continental-Mexican Rubber Co.....	*175,000
Charles T. Wilson.....	*50,000
*225,000	
MAY 18.—By the <i>Bayamo</i> =Tampico:	
New York Commercial Co.....	*135,000
Ed. Maurer.....	*70,000
Arnold & Zeiss.....	*30,000
For Europe.....	*56,000
*291,000	
MAY 20.—By the <i>Monterey</i> =Vera Cruz:	
Willard Hawes & Co.....	2,500
American Trading Co.....	2,000
Charles E. Reade.....	1,000
Harburger & Stack.....	1,000
6,500	
MAY 20.—By the <i>Cincinnati</i> =Hamburg:	
Meyer & Brown.....	*37,000
Ed. Maurer.....	*34,000
*71,000	
MAY 21.—By the <i>Colon</i> =Colon:	
Mecke & Co.....	3,500
G. Amsinck & Co.....	2,000
A. L. Mareno.....	1,000
6,500	
MAY 22.—By the <i>Tivives</i> =Colon:	
G. Amsinck & Co.....	4,500
Isaac Brandon & Bros.....	2,000
Wessels Kulenkampf & Co.....	1,000
Gillespie Bros. & Co.....	1,000
8,500	

AFRICAN.

POUNDS.

APRIL 26.—By the <i>Kaiserin Auguste Victoria</i> =Hamburg:	
George A. Alden & Co.....	30,000
Henderson & Korn.....	33,500
Wallace L. Gough Co.....	13,500
Meyer & Brown.....	5,500
Rubber Trading Co.....	5,500
88,000	
APRIL 27.—By the <i>Adriatic</i> =Liverpool:	
General Rubber Co.....	56,000
Ed. Maurer.....	34,000
George A. Alden & Co.....	22,000
James T. Johnstone.....	8,000
120,000	
APRIL 29.—By the <i>La Touraine</i> =Havre:	
General Rubber Co.....	33,500
Wallace L. Gough Co.....	5,000
38,500	
APRIL 29.—By the <i>Caronia</i> =Liverpool:	
Henderson & Korn.....	11,000
Raw Products Co.....	2,500
13,500	
APRIL 29.—By the <i>Pretoria</i> =Hamburg:	
George A. Alden & Co.....	34,000
General Rubber Co.....	14,000
Ed. Maurer.....	11,500
Rubber Trading Co.....	10,000
Robert Badenhop.....	6,000
75,500	
APRIL 20.—By the <i>Roma</i> =Lisbon:	
Arnold & Zeiss.....	11,500
Ed. Maurer.....	11,000
22,500	
APRIL 30.—By the <i>Finland</i> =Antwerp:	
Meyer & Brown.....	11,000
11,000	
MAY 1.—By the <i>Atlantian</i> =Liverpool:	
Ed. Maurer.....	11,500
Arnold & Zeiss.....	7,000
18,500	
MAY 6.—By the <i>Minnehaha</i> =London:	
General Rubber Co.....	11,000
Meyer & Brown.....	9,000
Raw Products Co.....	5,000
25,000	
MAY 6.—By the <i>Baltic</i> =Liverpool:	
General Rubber Co.....	35,000
Ed. Maurer.....	25,000
James T. Johnstone.....	7,000
Arnold & Zeiss.....	5,500
Raw Products Co.....	4,500
Henderson & Korn.....	3,000
Robert Badenhop.....	3,500
83,500	
MAY 7.—By the <i>Batavia</i> =Hamburg:	
Ed. Maurer.....	11,500
General Rubber Co.....	11,000
Wallace L. Gough Co.....	4,500
Arnold & Zeiss.....	3,000
Raw Products Co.....	2,500
Robert Badenhop.....	2,500
35,000	
MAY 8.—By the <i>Vaderland</i> =Antwerp:	
Meyer & Brown.....	13,500
Rubber Trading Co.....	8,000
21,500	
MAY 8.—By the <i>President Grant</i> =Hamburg:	
George A. Alden & Co.....	73,000
Meyer & Brown.....	27,000
100,000	
MAY 9.—By the <i>Philadelphia</i> =London:	
Ed. Maurer.....	13,500
13,500	
MAY 11.—By the <i>Cedric</i> =Liverpool:	
James T. Johnstone.....	40,000
George A. Alden & Co.....	5,500
45,500	
MAY 13.—By the <i>Carmania</i> =Liverpool:	
General Rubber Co.....	56,000
A. W. Brunn.....	7,000
63,000	
MAY 13.—By the <i>Amerika</i> =Hamburg:	
Meyer & Brown.....	30,000
Ed. Maurer.....	11,500
General Rubber Co.....	11,000
George A. Alden & Co.....	11,500
Robert Badenhop.....	2,500
Raw Products Co.....	2,500
69,000	
MAY 14.—By the <i>Lapland</i> =Antwerp:	
Meyer & Brown.....	34,000
General Rubber Co.....	35,000
L. Blitz.....	11,000
A. W. Brunn.....	5,000
85,000	
MAY 14.—By the <i>Minnewaska</i> =London:	
George A. Alden & Co.....	13,500
General Rubber Co.....	13,500
27,000	
MAY 15.—By the <i>La Bretagne</i> =Havre:	
Ed. Maurer.....	35,000
35,000	
MAY 17.—By the <i>Pennsylvania</i> =Hamburg:	
Ed. Maurer.....	18,000
18,000	
MAY 18.—By the <i>Celtic</i> =Liverpool:	
Meyer & Brown.....	11,500
11,500	
MAY 20.—By the <i>Cincinnati</i> =Hamburg:	
Ed. Maurer.....	70,000
George A. Alden & Co.....	35,000
Meyer & Brown.....	16,000
Arnold & Zeiss.....	13,500
Wallace L. Gough Co.....	10,000
Henderson & Korn.....	3,500
Robert Badenhop.....	3,500
151,500	

MAY 20.—By the <i>New York</i> —London:	
George A. Alden & Co.....	8,000
General Rubber Co.....	3,500
MAY 22.—By the <i>Germania</i> —Lisbon:	
Ed. Maurer.....	48,000
George A. Alden & Co.....	22,500
Wallace L. Gough Co.....	11,500
MAY 22.—By the <i>Ky nland</i> —Antwerp:	
Meyer & Brown.....	11,000
Henderson & Korn.....	4,500

EAST INDIAN.

[*Denotes plantation rubber.]

APRIL 25.—By the <i>Indradeo</i> —Singapore:	
Ed. Maurer.....	*18,000
Otto Isenstein & Co.....	*13,500
Arnold & Zeiss.....	15,500
Haebler & Co.....	5,000
Otto Isenstein & Co.....	13,500

APRIL 26.—By the <i>Kaiserin Auguste Victoria</i> —Hamburg:	
George A. Alden & Co.....	13,500

APRIL 26.—By the <i>Intercede</i> —Singapore:	
Ed. Maurer.....	*22,500
Haebler & Co.....	*11,500
New York Commercial Co.....	*3,500
Wallace L. Gough Co.....	*3,500
United Malaysian Rubber Co.....	22,500

APRIL 29.—By the <i>Pretoria</i> —Hamburg:	
Ed. Maurer.....	*11,000

APRIL 29.—By the <i>Kasengu</i> —Colombo:	
Meyer & Brown.....	*56,000
New York Commercial Co.....	*8,000

APRIL 29.—By the <i>Hampden</i> —London:	
General Rubber Co.....	*155,000
Arnold & Zeiss.....	*35,000
New York Commercial Co.....	*45,000
Meyer & Brown.....	*22,500
Ed. Maurer.....	*11,500
Charles T. Wilson.....	*13,500
In transit.....	*30,000

APRIL 30.—By the <i>Finland</i> —Antwerp:	
Meyer & Brown.....	*11,500

APRIL 30.—By the <i>Minnetonka</i> —London:	
New York Commercial Co.....	*160,000
Arnold & Zeiss.....	*100,000
General Rubber Co.....	*80,000
Ed. Maurer.....	*35,000
Meyer & Brown.....	*35,000
Henderson & Korn.....	*22,500
Robinson & Co.....	*22,500
James T. Johnstone.....	*11,000
Raw Products Co.....	*7,000
Charles T. Wilson.....	*7,000
In transit.....	*22,500
Arnold & Zeiss.....	11,500

MAY 6.—By the <i>Baltic</i> —Liverpool:	
Ed. Maurer.....	*15,000

MAY 6.—By the <i>Minnehaha</i> —London:	
General Rubber Co.....	*170,000
Henderson & Korn.....	*90,000
Ed. Maurer.....	*60,000
Meyer & Brown.....	*55,000
New York Commercial Co.....	*50,000
James T. Johnstone.....	*22,500
Raw Products Co.....	*11,500
Charles T. Wilson.....	*3,000
In transit.....	*20,000
Henderson & Korn.....	13,500
George A. Alden & Co.....	11,000
Charles T. Wilson.....	6,500

MAY 8.—By the <i>Vaderland</i> —Antwerp:	
Meyer & Brown.....	*115,000
Henderson & Korn.....	*17,000
General Rubber Co.....	*11,000

MAY 10.—By the <i>Ky nland</i> —London:	
Arnold & Zeiss.....	*65,000
New York Commercial Co.....	*17,000
In transit.....	*60,000
Arnold & Zeiss.....	13,500
MAY 10.—By the <i>Ky nland</i> —Singapore:	
Ed. Maurer.....	*15,500
Haebler & Co.....	*7,000
Ed. Maurer.....	55,000
Otto Isenstein & Co.....	11,000
Arnold & Zeiss.....	9,000

MAY 11.—By the <i>Columbia</i> —Colombo:	
Meyer & Brown.....	*100,000
New York Commercial Co.....	*50,000

MAY 13.—By the <i>Cirmania</i> —Liverpool:	
Ed. Maurer.....	*11,500

MAY 14.—By the <i>Lapland</i> —Antwerp:	
Meyer & Brown.....	*50,000
Arnold & Zeiss.....	*22,500
Rubber Trading Co.....	*5,500

MAY 14.—By the <i>Minnewaska</i> —London:	
Henderson & Korn.....	*90,000
Arnold & Zeiss.....	*80,000
New York Commercial Co.....	*65,000
Ed. Maurer.....	*55,000
Meyer & Brown.....	*15,000
Charles T. Wilson.....	*10,000
James T. Johnstone.....	*7,000
Rubber Trading Co.....	*9,000
In transit.....	*80,000
George A. Alden & Co.....	15,000

MAY 16.—By the <i>Ocean</i> —London:	
New York Commercial Co.....	*118,000
Arnold & Zeiss.....	*55,000
James T. Johnstone.....	*45,000
Meyer & Brown.....	*30,000
Ed. Maurer.....	*18,000

MAY 16.—By the <i>Fangdon</i> —Colombo:	
New York Commercial Co.....	*70,000
Meyer & Brown.....	*16,000
Robert Badenhop.....	*11,500

MAY 20.—By the <i>New York</i> —London:	
Arnold & Zeiss.....	*65,000
New York Commercial Co.....	*65,000
Rubber Trading Co.....	*3,500
In transit.....	*25,000

MAY 21.—By the <i>Kroonland</i> —Antwerp:	
Meyer & Brown.....	*45,000
Rubber Trading Co.....	*7,000

MAY 23.—By the <i>Olympic</i> —London:	
Arnold & Zeiss.....	*55,000
New York Commercial Co.....	*34,000
Henderson & Korn.....	*22,500
Meyer & Brown.....	*22,500
Ed. Maurer.....	*7,000
William H. Stiles.....	*4,500
In transit.....	*78,000
Robinson & Co.....	10,000

GUTTA-JELUTONG.

APRIL 25.—By the <i>Indradeo</i> —Singapore:	
L. Littlejohn & Co.....	225,000
Wallace L. Gough Co.....	100,000
A. W. Brunn.....	55,000

APRIL 26.—By the <i>Intercede</i> —Singapore:	
L. Littlejohn & Co.....	450,000
Haebler & Co.....	250,000
Wallace L. Gough Co.....	155,000

MAY 8.—By the <i>Noordam</i> —Rotterdam:	
L. Littlejohn & Co.....	33,000
Wallace L. Gough Co.....	22,600

MAY 10.—By the <i>Ky nland</i> —Singapore:	
L. Littlejohn & Co.....	1,550,000
Haebler & Co.....	350,000
Wallace L. Gough Co.....	150,000
Winter & Smilie.....	100,000
George A. Alden & Co.....	90,000

MAY 14.—By the <i>Ky nland</i> —Rotterdam:	
L. Littlejohn & Co.....	200,000
Manhattan Rubber Mfg. Co.....	5,000

GUTTA-PERCHA.

APRIL 25.—By the <i>Indradeo</i> —Singapore:	
Haebler & Co.....	5,000

APRIL 26.—By the <i>Kaiserin Auguste Victoria</i> —Hamburg:	
Robert Soltan & Co.....	15,000

APRIL 13.—By the <i>Amerika</i> —Hamburg:	
Robert Soltan & Co.....	9,000

BALATA.

APRIL 29.—By the <i>Pretoria</i> —Hamburg:	
Ed. Maurer.....	5,500

MAY 1.—By the <i>Coppename</i> —Trinidad:	
G. Amsinck & Co.....	11,500
Schutte, Bunemann & Co.....	6,000
Suzarte & Whitney.....	1,000
George A. Alden & Co.....	1,000

MAY 14.—By the <i>Saramaca</i> —Bolívar:	
Yglesias Lobo & Co.....	4,500
G. Amsinck & Co.....	1,500
American Trading Co.....	3,000

MAY 21.—By the <i>Marowijne</i> —Trinidad:	
Yglesias Lobo & Co.....	10,000
Bartling & De Leon.....	2,000

BOSTON ARRIVALS.

APRIL 8.—By the <i>Canadian</i> —Liverpool:	
Arnold & Zeiss (African).....	7,100

APRIL 15.—By the <i>Bulgaria</i> —Hamburg:	
George A. Alden & Co. (African).....	11,500

APRIL 18.—By the <i>Pathan</i> —Singapore:	
State Rubber Co. (East Indian).....	*41,500

APRIL 10.—By the <i>Shimosa</i> —Singapore:	
L. Littlejohn & Co. (Jelutong).....	450,000

APRIL 18.—By the <i>Pathan</i> —Singapore:	
L. Littlejohn & Co. (Jelutong).....	220,000
State Rubber Co. (Jelutong).....	250,000

APRIL 22.—By the <i>Inverclyde</i> —Singapore:	
L. Littlejohn & Co. (Jelutong).....	450,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK, APRIL, 1912.

Imports:	Pounds.	Value.
India-rubber.....	12,729,915	\$11,143,373
Balata.....	38,404	21,367
Guayule.....	971,150	494,672
Gutta-percha.....	180,891	35,989
Gutta-jelutong (Pontianak).....	4,597,975	205,688
Total.....	18,518,335	\$11,901,089

Exports:	Pounds.	Value.
India-rubber.....	105,796	\$89,290
Balata.....	880	360
Guayule.....	.....	.....
Gutta-percha.....	.....	.....
Reclaimed rubber.....	54,245	9,745
Gutta-jelutong (Pontianak).....	109,646	5,483
Rubber scrap, imported.....	1,903,555	\$167,795
Rubber scrap, exported.....	416,598	52,426

EXPORTS OF INDIA-RUBBER FROM PARA FOR APRIL, 1912 (IN KILOGRAMS).

EXPORTERS.	NEW YORK.					EUROPE.					TOTAL.
	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	
Zarges, Berringer & Co.....	62,952	15,566	216,305	102,324	397,147	90,864	21,041	15,235	53,511	180,651	577,798
Ad. H. Alden, Ltd.....	32,253	3,320	69,726	20,572	125,871	40,630	3,910	36,300	.....	80,840	206,711
R. O. Ahlers & Co.....	74,880	5,746	12,347	45,835	138,808	42,934	807	7,227	11,997	62,965	201,773
Suárez Hermanos & Co., Ltd.....	.....	.....	.....	.....	.....	144,429	701	2,892	46,341	194,363	194,363
General Rubber Co. of Brazil.....	34,516	4,015	31,116	18,480	88,127	31,774	6,362	15,986	22,534	76,656	164,783
M. Ulmann & Co.....	.....	.....	.....	.....	.....	7,410	.....	6,260	70,840	84,510	84,510
De Lagotellerie & Co.....	10,880	880	18,480	.....	30,210	.....	.....	.....	.....	30,210	30,210
Pires Teixeira & Co.....	13,090	1,020	11,880	.....	25,990	.....	.....	.....	.....	25,990	25,990
Nunes Sobrinho & Co.....	3,570	340	990	280	5,180	10,100	2,084	3,936	734	16,854	22,034
Sundries.....	1,020	.....	6,600	840	8,460	2,115	105	430	.....	2,650	11,110
Itacoatiara, direct.....	.....	.....	.....	.....	1,860	1,860	1,680	1,007	.....	4,547	4,547
Manãos, direct.....	233,161	30,857	367,444	188,331	819,793	372,116	36,690	89,273	205,957	704,036	1,523,829
Iquitos, direct.....	241,221	98,208	118,392	63,189	521,010	287,498	53,139	79,892	122,692	543,221	1,064,231
.....	.....	.....	.....	.....	139,807	139,807	17,953	37,400	295,972	491,132	491,132
Total, April, 1912.....	474,382	129,065	485,836	251,520	1,340,803	799,421	107,782	206,565	624,621	1,738,389	3,079,192
Total, March, 1912.....	928,549	268,394	828,225	639,217	2,664,385	1,114,992	169,333	317,312	619,521	2,221,158	4,885,543
Total, February, 1912.....	1,162,009	304,910	771,647	405,698	2,644,264	1,474,610	126,185	291,077	600,644	2,492,516	5,136,780
Total, January, 1912.....	752,317	112,959	437,915	64,926	1,368,171	1,382,605	180,547	339,253	451,773	2,354,178	3,722,295



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JUNE 1, 1912.

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THE ALL-CEYLON EXHIBITION AT COLOMBO.

It is expected that rubber will be represented on a very complete and unusually large scale at the "All-Ceylon Exhibition" to be held at Colombo from July 1 to July 6 next. No less than 17 classes will be devoted to rubber, and to the machinery, tools, etc., connected with that industry. The exhibition will as far as possible be divided into districts, and a number of valuable prizes will be offered.

Antwerp.

RUBBER ARRIVALS FOR APRIL.

DETAILS—	1912.	1911.	1910.	1909.	1908.
Stocks, March 31.....kilos	359,016	645,614	499,102	595,855	1,136,892
Arrivals in April—					
Congo sorts.....	360,605	131,553	340,456	219,645	175,000
Other sorts.....	15,117	44,791	40,014	91,908	29,016
Plantation sorts.....	129,715	90,033	49,400	18,724	7,533
Aggregating.....	864,453	911,991	928,972	926,132	1,348,441
Sales in April.....	426,940	312,877	458,504	318,345	630,528
Stocks, April 30.....	437,513	599,114	470,468	607,787	717,913
Congo sorts.....	1,091,077	1,072,515	1,171,286	1,001,032	1,522,423
Other sorts.....	45,735	205,968	120,169	368,972	173,734
Plantation sorts.....	407,325	257,562	178,094	88,365	33,201
Arrivals since Jan. 1.....	1,544,137	1,536,045	1,469,549	1,458,369	1,729,358
Sales since January 1.....	1,781,162	1,525,143	1,540,593	1,446,317	2,018,339

RUBBER ARRIVALS FROM THE CONGO.

APRIL 30.—By the steamer *Leopoldville*:

Bunge & Co.....	(Société Générale Africaine) kilos	104,000
do.....	(Chemins de fer Grands lacs)	10,000
do.....	(Cie. du Kasai)	62,000
do.....	(Comfina)	125
Société Coloniale Anversoise.....	(Haut Congo)	2,000
do.....	(Aliment. du Bas Congo)	1,200
do.....	(Cie. franc. du Haut Congo)	4,850
L. & W. Van de Velde.....	(Comfina)	15,500
do.....	(Comminiere)	17,500
do.....		5,000
Charles Dethier.....	(American Congo Co.)	6,600
Congo Trading Co.....		6,200
Willart Freres.....		5,000
Osterreith & Co.....		1,400
Société Générale de Commerce.....	(Alimaienne)	750 242,125

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to April 22, 1911 and 1912. Compiled by the Ceylon Chamber of Commerce.]

	1911.	1912.
To Great Britain.....pounds	831,658	1,950,654
To United States.....	545,374	1,234,188
To Belgium.....	89,364	451,218
To Germany.....	7,585	39,905
To Australia.....	12,613	34,002
To Canada.....	9,971	12,121
To Japan.....	11,953	5,687
To Austria.....	.....	5,320
To Italy.....	750	4,692
To Norway and Sweden.....	.....	39
To Holland.....	100	.....
To India.....	40	.....

Total..... 1,569,408 3,737,826
[Same period 1910—740,937; same 1909—295,068.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

	Singapore.	Penang.	Port Swet-	Total
	April 16.	March 31.	April 15.	1912.
To—				
Great Britain.....pounds	2,873,085	2,326,667	4,112,200	9,311,952
Continent.....	80,573	55,866	493,694	630,133
Japan.....	75,977	6,457	.....	82,434
Australia.....	12,304	.....	.....	12,304
Ceylon.....	.....	45,729	147,599	193,328
United States.....	685,279	.....	.....	685,279
Total.....	3,727,218	2,434,719	4,753,493	10,915,430
Same period, 1911.....	1,676,849	1,187,438	3,765,400	6,629,687
Same period 1910.....	944,557	489,755	2,215,583	3,649,895
Same period, 1909.....	832,793	786,903	.....	1,619,696

INCREASED RUBBER IMPORTS.

As illustrating the expansion of the American rubber industry, it is of interest to note that the official statistics for the nine months ending March 31 last, of United States imports of india-rubber, show a quantity of 80,730,111 pounds as compared with 54,029,940 pounds for the corresponding period a year earlier. These figures are for india-rubber alone, apart from balata, guayule, gutta jelutong and gutta percha. The statement in a daily journal that the imports of crude rubber for the ten months ending April 30, 1912, were 425,000,000 pounds, as compared with 303,000,000 pounds in 1911, is an obvious mistake.

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JULY 1, 1912.

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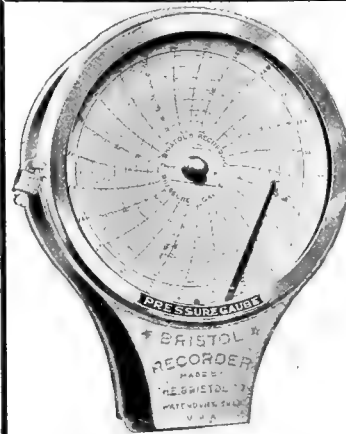
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TABLE OF CONTENTS ON LAST PAGE OF READING.

THE IMPORTANCE OF THE RUBBER CONFERENCE.

WHEN the average layman attends an industrial exposition he does so usually for the purpose of getting as much information regarding that industry as possible in the briefest time. He goes from booth to booth and looks at the articles displayed, possibly asks a few questions, puts a little literature in his pocket, and after an hour's peregrination among the exhibitors, with perhaps a few minutes spent later in looking over the booklets he has put in his pocket, he gets a surface idea at least of the achievements of that particular industry. His knowledge does not go very deep, but it may suffice for the average man who is interested in that special industry, only as it is one of many that go to make up our industrial structure. Very likely, his hour spent among the exhibitors has increased his knowledge of that particular line of activity 500 per cent. It is education on the run, but it is much better than none at all.

But, in an exposition that is seriously conceived,

that is promoted with the intention, not only of showing to the casual visitor the product of that particular department of manufacture, but with the idea of making the exposition count for the general advancement of the industry, there must be something that will be new, interesting and informing to those whose work is vitally connected with that branch of endeavor.

That is precisely what was done in the case of the two London rubber expositions, held in 1908 and 1911. These expositions afforded a valuable fund of information on rubber matters to the general Londoner who attended, but they went far beyond that; they afforded an opportunity to the rubber man himself to add greatly to his knowledge of the subject. This was done by means of a series of conferences held during the progress of the exposition.

These conferences, presided over by Sir Henry Blake, were attended by hundreds of rubber men, and carefully prepared papers were read by those who were in a position to speak authoritatively on the topics discussed. Every phase of the varied rubber industry was taken up. Planters gave the result of the years of experience which they had had in planting rubber. All sides of the plantation problem were exploited; the best preparation of the soil, the best system of collecting and coagulating latex, the best method of taking care of labor, and many other interesting subjects were gone into in detail. Chemists of prominence and recognized authority discussed rubber from the standpoint of its chemistry and described the best tests—physical and chemical—to prove its quality. Men who had spent years in the research laboratories told of their work and of their discoveries. Financial experts talked about the factors that made for value in the rubber shares sold in the London market.

The carefully prepared papers were followed by general discussion that often widened out into channels that the author of the paper had not touched. To show how extensive was the work done at these conferences, it is only necessary to say that the book published after the last London exposition containing the various papers read, addresses made, and discussions that ensued, contained almost 500 pages—of most valuable matter.

At the first American Rubber Exposition, to be held at the Grand Central Palace, in New York, next September, the conferences, it can confidently be stated, will play a most important part. A number of those who

contributed most successfully to the valuable work of the London conferences will be in attendance, and, in addition, many who did not take part in London will be present and participate actively in New York. Many of the best-known rubber men abroad will be present and will bring important and valuable contributions, and many of the recognized leaders in the rubber world of America have expressed their willingness to address the conference.

It might be thought, possibly, that men who are engaged in experimental work would hesitate to give publicity in this way to the result of their researches and discoveries. Of course, there are always a few men who think they are the losers if they impart any information of value that has come to them through their own experience, but these men are in the minority. It is safe to say that most of the leading men in the rubber industry take a very broad view of this great department of human activity, and are very glad to contribute to its general advancement in any way they can. Rubber men who attend the New York Rubber Exposition may rest assured that they will not only see the most interesting collection of the physical products of the rubber world, but will be able, by attending the conferences, to carry away with them a great fund of new and valuable rubber knowledge.

CAN RUBBER BE PRODUCED IN THE UNITED STATES?

THE story of "Trinidad and Its Rubber," which appears on another page of this issue, written by the editor of THE INDIA RUBBER WORLD, during his recent visit to the West Indies, speaks particularly of the awakening among the rubber planters of that island to the fact that quite a number of their trees, which they believed were pure *Hevea Brasiliensis*, have proved to be hybrids. This has caused the planters not a little distress, because these particular hybrids are much less productive of good rubber than the pure *Hevea*; but it serves once more to bring up the general subject of hybridization with its natural suggestion of the possibility of such hybridization, or cross fertilization, or grafting as will enable some variety of the rubber-producing tree to be grown in the more southerly sections of the United States.

It is doubtful if a botanically pure *Hevea Brasiliensis* actually exists. There are 20 varieties of the *Hevea* along the Amazon; there are seven or eight varieties of *Manihot*

in the more easterly part of Brazil; and of *Castilloas* there are, north of the Amazon, probably 20 different varieties. Which of these many varieties represents the pure parent stock—if any of them does—it is impossible to tell. Hybridization seems to be the general law in the rubber family, and if it could be directed in such a way as to produce a rubber tree capable of withstanding such temperatures as we have in our more southerly States, a vast field for rubber planting would be opened at once.

The advantages of such rubber planting are too obvious to need enumeration. The most conspicuous may be referred to in a few words—the utilization of great tracts of land now practically going to waste; the easy solution of the labor, provision and sanitation problems that are so difficult in the Amazon country; a great decrease in transportation charges; freedom from exacting duties. All these and many other advantages point to the great desirability, if practicable, of rubber growing in our own country.

On the face of it, it does not seem necessarily impracticable. There are several plants indigenous to the United States that are quite closely related to the varieties of the rubber tree. Our ordinary milk weed, of which there are some 50 different kinds in the United States, is a cousin of the *Hevea Brasiliensis*, and some of its varieties, particularly those in Florida, that attain the size of a tree, bear something of a family resemblance. The mulberry tree, which grows readily in this country, is related to the *Ficus elastica* branch of the rubber family. With these distant relationships already existing, it would seem to be a not impossible task to establish a much closer relationship. It is a well-known fact that both hybridization and grafting produce a hardier plant than the original. Tropical roses have been grafted on the common American rose, and have thriven under our often frigid conditions. The peach, which grows so luxuriantly in Delaware and Jersey, certainly a cold territory in winter, was originally a tropical plant, coming probably from the south of China. Tropical oaks have been grafted on northern oaks and proved themselves able to withstand our rigorous climate. So why is it not possible for the rubber tree, to be induced by either grafting or by other means, to take up its home in Florida, Mississippi or Texas? It might not—probably would not—be as productive as along the banks of the Amazon, but if it were only one-half as productive, it would prove a great addition to our national wealth.

It is assuredly a subject worthy of the attention of the best minds connected with our government and State agricultural departments.

AUTO TRUCKS FOR NATIONAL DEFENSE.

THE United States Army has been experimenting for some time with the auto-truck as a means of conveying army supplies. These experiments have as a whole been very satisfactory, proving beyond argument the superiority, both from the standpoint of increased efficiency and of decreased expense, of motor trucks over that venerable but leisurely and not always reliable institution, the army mule. THE INDIA RUBBER WORLD, in its issue of November last, mentioned the experiments tried by General George T. E. Bliss in southern California. As a result of his tests he reported that in his opinion the time had come for the adoption of the motor truck for military service, and its gradual substitution for the escort wagon.

But the English War Department has gone a step further. It has given long and serious consideration to a plan for subsidizing all the motor wagons owned by private persons in England under an agreement by which they could all be purchased for a fixed sum by the government, whenever in the opinion of the war minister they were needed for national defense. The scheme considered by the department divides commercial vehicles into two classes—those capable of carrying a load of three tons at a speed of ten miles an hour and those capable of carrying half that weight at a speed of twelve miles an hour. The plan includes an initial payment of \$40 or \$50, to be followed by an annual payment of about \$70 to the owners of the trucks.

There are obvious reasons why the adoption of this plan should be much more desirable in England than in the United States. In the first place England is much more liable to foreign invasion than we are, with 3,000 miles of the Atlantic on one side and 5,000 miles of the Pacific on the other. Furthermore in England the distances are short and the roads highly developed, while with us the reverse is true in both cases. In the almost unthinkable event of serious foreign invasion of our territory, the railroads would have to be relied upon mainly for the work of transportation, owing to our great distances. But for local use undoubtedly the auto-truck would come conspicuously into play.

It is doubtful if our own war department has given much earnest consideration to any plan of subsidizing American motor vehicles, but it is undoubtedly watching with interest these developments abroad. The commercial auto-car in reality does not need any government subsidy in this country to insure its popularity. The

growth of production in this particular line has been very rapid. The United States census of 1905 showed only 822 of these vehicles in the whole country. Five years later the number had increased to 5,510; and the present number of commercial motor vehicles is estimated at close to 25,000; and it is a safe prophecy that this increase will go on indefinitely; for the superiority of the motor wagon over the horse-drawn vehicle is quite as obvious in times of peace as in times of war.

DO WE EXPORT BAD MANNERS?

THAT intrepid scaler of lofty mountain peaks, Miss Annie Peck, in an address which she made before the first Pan-American Trade Conference recently held in New York, had this to say among other interesting things:

"In regard to the trade between the United States and South America, this country needs several things. It needs ships, a knowledge of the Spanish language and good manners."

She went on further to observe that "the people of the United States are noted in South American countries for their bad manners. The commercial men who are sent there do not appreciate their Latin temperament. They do not inform themselves about the countries they visit. They look upon the great South American cities as small towns."

If this were the first time that this charge had ever been made it might be possible to pass it by with our customary American indifference, notwithstanding the fact that Miss Peck is an observing person who has spent many years in South America, devoted not only to mountain climbing, but to making the acquaintance of the people of the Southern Continent. But, in view of the fact that this same charge has been made many times before, it seems safe to assume that there must be at least a considerable proportion of truth in it.

Our South American trade is not what it ought to be. In the June issue of this publication we gave a brief table referring to rubber exports which showed that American rubber goods, including belting, hose and packing, boots and shoes, tires, and every other rubber product of our mills consumed by the people of Brazil during 1911, amounted only to \$150,000 in value. This is certainly a very meagre showing, considering the fact that the territory of Brazil is nearly nine-tenths that of the entire United States. Obvi-

ously, there is some reason why our exports to that republic and other South American countries have not yet assumed their proper proportions. It is not unlikely that indifferent manners have something to do with the smallness of these exports.

Any salesman, who has been in his position for more than a week, knows that in the domestic field, at least, it is necessary for him to display a certain amount of courtesy to succeed. When he goes into the office of a hoped-for customer he may detect many things that to his mind are open to criticism; the office may seem to lack system; it may be noticeably untidy; and the whole atmosphere of the place may not be at all to his liking, but he is hardly likely to introduce himself by saying, "Well, this certainly is a punk place; you ought to get a vacuum cleaner in here, and pump it out." If he should take that tack he would undoubtedly very soon leave the office, but not with a large order for goods. Courtesy may not always sell a bill of goods, but it invariably leaves a welcome for the salesman when he comes again. And if this is true at home there is every reason to think that it is equally true abroad.

New York may possess quite a number of distinct points of advantage over Rio Janeiro, and there is no harm in calling attention to this fact—when in New York. But when in Rio Janeiro the case is quite different, and, obviously, it is neither good breeding nor good business to boast there about American bigness to the disparagement of things Brazilian. It is right, of course, for the salesman to emphasize the superior quality of his wares, but if he wants to make friends—and customers—he will not lay too much stress on home superiority in other directions, even should such superiority exist. Good manners are great business builders everywhere; they will do more to open up a new territory than a steamship line or a thousand miles of railway.

A GLUT OF SECURITIES.

THE new financing that is now under way for the United States Rubber Co. and The B. F. Goodrich Co. gives a special interest to the general condition of the security market at the present time. There is no doubt, whatever, about the success of these new rubber offerings. The new issue of \$10,000,000 preferred stock by the United States Rubber Co. will hardly need to be underwritten, in view of the fact that these new shares are offered to the stockholders at par, while they are selling in the market at about \$12 above par. Nor will there be any difficulty in market-

ing the new shares of the enlarged B. F. Goodrich Co. in light of the exceptional profits made in the recent past by the Goodrich and Diamond companies, and the assurance of attractive dividends on the new stock.

But the general security market is not in the best possible shape. Its present condition is similar to that of three or four years ago when Mr. Morgan described the financial world as "suffering from undigested securities." During the first five months of the present year the new securities in the form of bonds, stocks and notes offered to the investor by the railroads and industrial corporations of the United States amounted to over \$1,200,000,000, and exceeded the offerings of the same period a year ago by a quarter of a billion. This enormous amount does not include State or municipal bonds issued during that time. Not only has the issue of securities greatly exceeded that of a year ago, but it comes at a time when the investing public is less than normally receptive. The summer of a Presidential campaign is never a time of brisk financial operations, and with the more than ordinary confusion in the present political outlook there is certainly no reason to believe that this summer will be an exception to the rule.

But the general financial situation will not interfere with the success of the rubber offerings, as they are exceptional in their character and stand on their own merits.

RUBBER COURSES IN LONDON.

A COURSE dealing with the chemistry and analysis of rubber has been established at the Northern Polytechnic Institute, Holloway, London, Mr. Frederick Kaye being in charge, with a total attendance of 38.

The students may be divided into three groups:

- a. Young men intending to go to Ceylon or Malaya, to be attached to plantations.
- b. Men engaged in the London rubber market, attached either to brokers' offices, or to those of plantation companies.
- c. Men engaged in the manufacture of rubber, or in London rubber warehouses.

The first part of the course was devoted to the study of crude rubber production, as well as to its analysis and the estimation of the commercial value of different rubbers. Attention is now being directed to methods of vulcanization, in addition to the physical and chemical investigation of vulcanized articles.

Next year the students will, it is expected, be able to devote themselves to more thorough analytical work, as the laboratory installation will then be more complete.

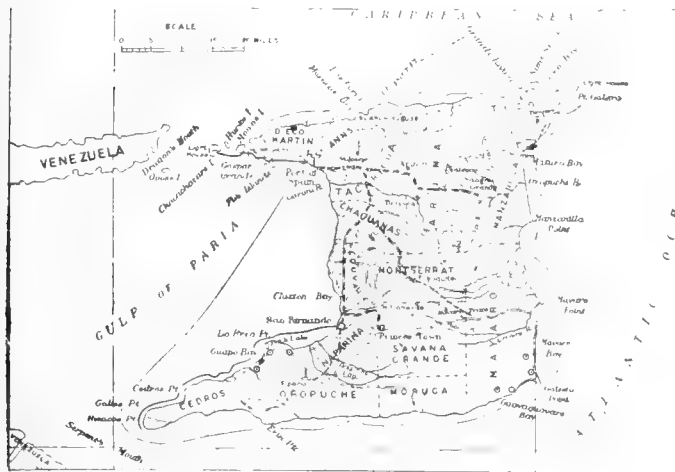
It is a distinct encouragement to the cause of rubber research to find the subject so successfully taken up in England.

Trinidad and Its Rubber.

By the Editor of "The India Rubber World."

Physical Aspects of Trinidad—Conquest and Settlement—Production of Cocoa—Rubber Planting—Professor Carmody—The *Hevea Confusa*—Its Peculiarities and Probable Origin—The Danger of Hybridization.

TRINIDAD on the map, that is on any ordinary map, looks like a tiny square blot of ink close to the coast of Venezuela. It opens out, however, as one approaches it as a very sizable island. It is actually 55 miles long and 40 miles broad, and is one of the most picturesque of all the islands of the tropical Atlantic. Its forest-crowned mountains, flower-bedecked valleys and broad savannas, densely covered with tropical growths, its rushing brooks and rivers, land-locked harbor, and its heterogeneous mixture of races, as well as its



MAP OF TRINIDAD.

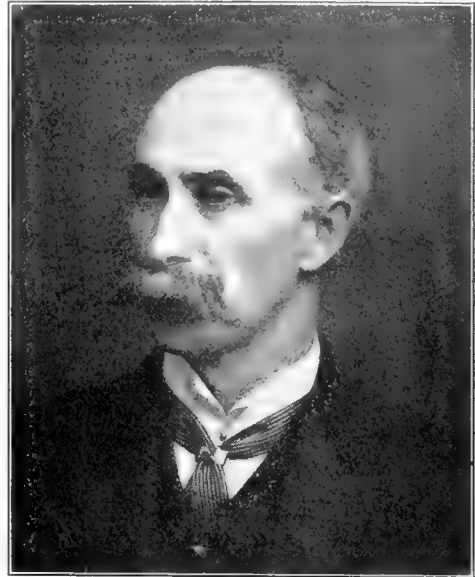
romantic history, lend to it a charm intensified day by day as the visitor becomes better and better acquainted. Of course, it was discovered by Columbus, and named by him, and equally, of course the native Indians, the Arouacks and the Chaimas, disappeared. Columbus had done well if instead of imposing so pious a name he had allowed it to remain "Irere"—Land of the



ENTRANCE TO GULF AT PARIA.

Humming Birds—as the natives called it. The island was owned by the Spanish until that picturesque adventurer Sir Walter Raleigh took it away from them—at least in part. Then came in

succession bodies of French agriculturists, importations of African slaves, Portuguese refugees, and in 1797 the actual capture of the island by the English. With British rule came the



PROF. P. CARMODY, F. I. C., F. C. S.

East Indian coolie, and fully one-third of the population today is made up of that tractable, continent and peaceable type.

Trinidad is hot, with a mean temperature of about 78 degs. The island has excellent roads, some 400 miles being good for automobiles. In addition there are 1,100 miles of roads, trails and bridle paths that give access to all parts of the island. There are also about 90 miles of good railroad. It is therefore easy to visit the Pitch Lake, the oilfields, the mineral springs and enjoy some beautiful drives through wonderfully picturesque mountain valleys.

Trinidad is a great center for tropical products. Her most abundant crop is cocoa, of which she produces one-fourth of the world's annual supply; nor are her planters asleep concerning



CUSTOM HOUSE AND LANDING, TRINIDAD.

rubber. There are a few quite sizable plantings, and hundreds that run from half a dozen trees up to several thousand. The tree most interesting to them all is the *Hevea Brasiliensis*, but

there are plantings also of *Ceara*, *Funtumia*, *Castilloa* and *Ficus*.

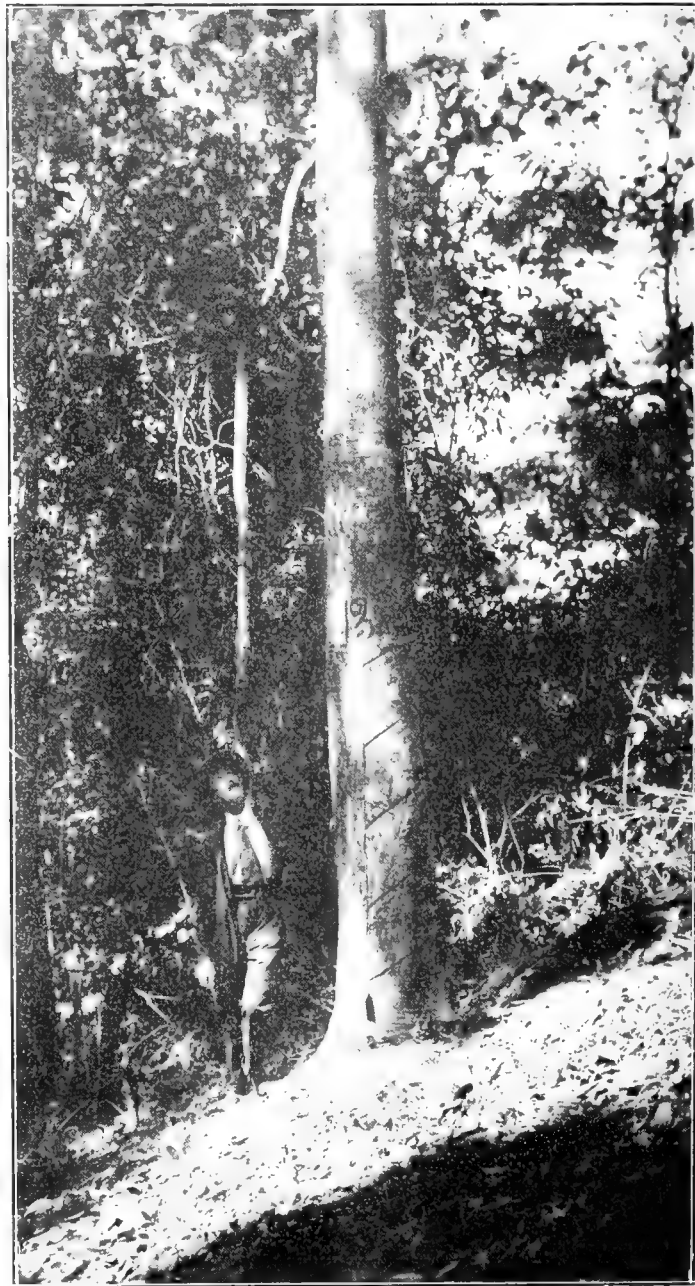
Trinidad gets its wealth largely from agriculture, and it is therefore natural that it should have an unusually strong Department of Agriculture. In addition to the splendid botanical

Those who have access to Demerara papers must have noted a difference of opinion between the head of the Department of Agriculture there and some Boston gentlemen regarding *Hevea* seed. It came about thus: The Boston men who are rubber manufacturers own two plantations, one in British Guiana and one in Trinidad. The latter contains fifty or sixty mature *Hevea* trees; the owners were gathering the seeds from them and planting their British Guiana lands. They were also selling *Hevea* seeds at a good price—\$5 per thousand I think it was—to planters in Trinidad, who were very glad to get them. Prof. Harrison in a communication to the planters in his own territory asserted that the seeds were not those of the *Hevea Brasiliensis*—at least some of them were not—and that such would produce an inferior tree. The result of this announcement was that the market for these particular seeds in Demerara ceased to exist,



TWELVE-YEAR-OLD *Hevea*, EXPERIMENT STATION, ST. CLAIR.

gardens situated close to Port of Spain, there are the St. Clair Experiment Station close at hand, and several outlying stations for various agricultural demonstrations. At the head of all of this is Professor Carmody, who, for more than 20 years, has successfully administered one of the most difficult positions in the tropical world. Governors came and went, budgets big and little were voted, his best men died or accepted positions in other fields, but he worked on, and brought success in cocoa, sugar, coconuts and oil. Today he is steadily advancing the planting of rubber. A warm-hearted, scholarly, witty Irishman—Trinidad owes him more than it can ever pay. It was under his direction that the late J. C. Carruthers instituted careful comparisons between the growth and yield of *Heveas* in the middle east and Trinidad and found them almost identical.



THIRTY-YEAR-OLD *Hevea*, BOTANIC GARDEN, EMPEROR VALLEY.

and Trinidad planters, fearing partial failure, refused to pay more than \$2 per thousand for them. The Boston manufacturers were naturally much exercised, and delivered themselves of a

series of spicy epistles which were received with grim amusement by the sturdy head of the British Guiana Department of Agriculture, but with no change of front.

It was while this matter was still being discussed that I was in Trinidad.

As soon as possible I visited the plantation that was at the source of the trouble. The place was of exceedingly easy access, situated on the railroad that runs from Port of Spain to San Fernando, with a station on the property. A neighboring planter, with true tropical hospitality, induced us to stop off before reaching our journey's end and visit his bungalow for breakfast, and take a look at his own cocoa which was extensive,

and his rubber which was only a beginning. From there we drove to the Boston plantation. There certainly were two types of *Hevea* there, and when the differences were once seen they were pronounced. About half the trees were true *Hevea Brasiliensis*; the rest were apparently hybrids. The latter were of lusty growth, full-branched and densely leaved; the leaf was much broader toward the point than that of the *Brasiliensis*. The bark also was exceedingly thin, being hardly an eighth of an inch in thickness, and the latex produced a rubber that was very short and far inferior to Fine Pará.

After the latex had ceased flowing a yellow green resin oozed out and rolled down over the bark and there remained as sticky as the surface of fly-paper. Another difference in the tree was in the outer bark, the surface of which was broken by many minute spines, whereas the bark of the *Brasiliensis*, although nearly smooth, shows tiny vertical ridges. Still another was the dark reddish

color of the bark as compared with the silvery appearance of the other. The tree was withering differently from the *Brasiliensis* in that it had a full crown of bright green leaves, while the true trees were either entirely or partially denuded. The

seeds were larger, squarer and lighter in weight than those of the *Brasiliensis*, although showing practically the same mottled coloring.

Naturally after such an unusual experience, one sought the Botanical experts at St. Clair Experiment Station for further information. Professor Carmody, the head of the Department of Agriculture, very courteously opened every door of information for us and we were at once

shown a group of the same type of trees, some nine or ten years old, which were being regularly observed. There were also in the nursery seedlings of both the *Brasiliensis* and the Hybrid for the purpose of determining the differences of the two growths from the beginning. There had already been noted a suggestion of a difference when the leaf-shoots first appeared, the leaves of the *Brasiliensis* hanging almost vertically, while those of the

Hybrid stood out from the stem almost horizontally. Mr. Collens, of the St. Clair staff, who is specializing on *Hevea*, was of the opinion that there was a difference in the venation of the leaves, and was devoting time to that line of investigation. The original source of the seed from which the trees on the Boston plantation grew, was probably a fine thirty-year-old *Brasiliensis* of undoubted purity growing in the Botanic Gardens



SIX-YEAR-OLD *Hevea*, EXPERIMENT STATION, ST. CLAIR.



Funtumia Elastica AT EXPERIMENT STATION, ST. CLAIR.

at Port of Spain. About one hundred feet from it was an equally large and thrifty *Hevea Confusa*. The theory, therefore,

is that bees visiting the flowers of the *Confusa* conveyed pollen to those of the *Brasiliensis* and thus were responsible for the creation of this troublesome mongrel. That it was discovered while

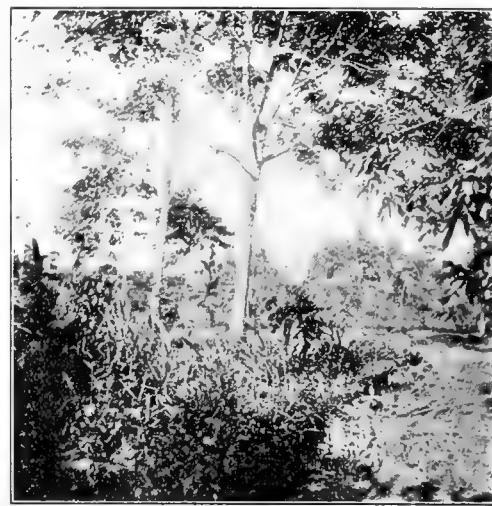


Hevea Confusa 1912. CUT BACK. TRINIDAD.

planting is still young in the Western World is most fortunate; and the scientist who spoke plainly regarding the matter in the beginning should receive a vote of thanks from all *Hevea* planters.

How many planters there are that have a few, or perhaps many, of these trees mixed with *Hevea Brasiliensis* no

one at present knows. Certain of the plantations that I visited had a few that looked very much like them. The proper course, when they are identified, is to cut them out or at least to prevent them from blossoming. It, however, is hard for an owner



Hevea (Confusa TYPE), TRINIDAD.

and others? Here certainly is food for thought, and room for research.

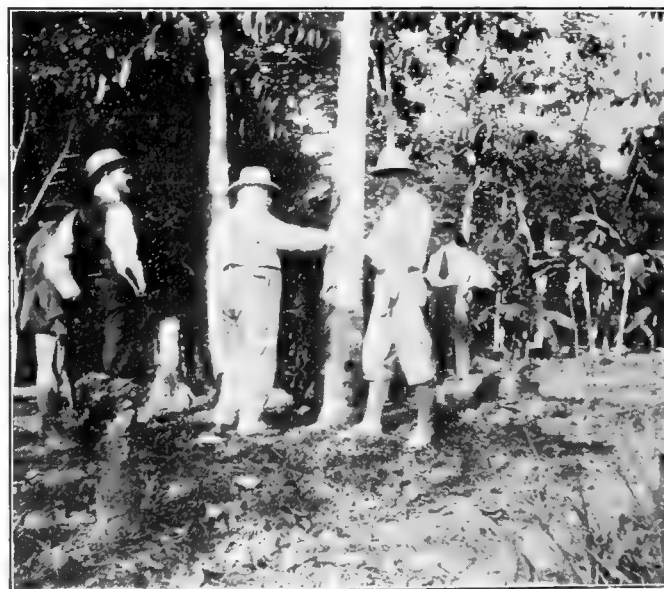
In the meantime, to guard against future harm, the branches of the original *Confusa* have been lopped off, and any blossoms that it attempts to send out will be cut off ere they can open.

That rubber planters, not only in Trinidad but in the other islands and in the Guianas, were greatly troubled over the new *Hevea* was very natural. So highly did one value his *Hevea* that to prevent any possible crossing he planned to cut out both his *Castilloa* and *Manihot*. He was promptly assured that there was



Hevea Confusa 1910, TRINIDAD BOTANIC GARDENS.

to destroy a tree that, to his eye, is one of the thriftiest of his *Heveas*. Then, too, comes the question as to whether or not



Hevea (Confusa TYPE), TRINIDAD.

no danger of hybridization in either of these cases, and breathed freer.

Then came the inevitable query. "If the good and the bad *Hevea* cross, why not the good and the bad *Castilloas*? How do I know that my seeds from Mexico or British Honduras are not hybrids of the *Castilloa elastica* and the *Castilloa tunu*?" To this there was only one answer delivered in "purest *Castilloa*"—"Quien Sabe?" (To be continued.)

Rubber Investigation at Berlin.

WHILE largely devoted to the results of the investigations of Dr. Eduard Marckwald, during his recent visit to the German possessions in Africa, dealt with in the March and May issues of the INDIA RUBBER WORLD (pages 269 and 425), the annual report of the Berlin "Kautschuk Zentralstelle für die Kolonien" likewise deals with the work of his colleague, Dr. Fritz Frank, in that connection at their joint laboratory.

A number of important conclusions, founded upon the experimental work carried out during the year ending in April last, are recorded in detail. The institution was enlarged through the valuable addition of a distilling plant, adapted for practical demonstrations of the industrial utilization of German colonial rosin and other products; another new feature being the installation (now in progress) of a new experimental washing plant, constructed on "rational" principles. This plant will, it is claimed, be all the more appreciated, as the process used does not in any way injure the rubber treated; the washing of experimental quantities up to one ton having been provided for.

RUBBERS TESTED.

The rubber samples tested were 185 in number: *Manihot*, 77; *Kickxia*, 69; *Castilloa*, 9; *Ficus*, *Landolphia*, etc., 16; *Hevea*, 14.

MANIHOT.

Two samples lately received from Togo were found of particularly good quality, showing a marked improvement over that of samples received last year from the same plantation. This improvement is solely attributed to the rational manner in which the operation of the plantation has been conducted.

A number of samples of *Manihot* rubber from an East-African plantation were tested, which had all been coagulated by chloride of calcium. While it had not been found possible to remove the chloride of calcium, the unfavorable effects apprehended from the use of that coagulant were not noticed. Still caution is recommended in its employment.

With respect to washing, the report states that all the washed samples tested had materially suffered through that process; while those which had been subjected to a supplementary heating were completely spoiled. In fact no rubber washed in the colony could be regarded as a high-grade article.

During his recent visit to East Africa, Dr. Marckwald collected a number of samples of rubber extracted and prepared by the most varied methods, respecting which a comprehensive report is in preparation.

KICKXIA.

A number of samples of *Kickxia* from a West-African plantation, showed in the case of those prepared with Purub, marked appearances of decomposition. Hence, the necessity becomes more and more evident of not adopting general methods of coagulation, but of using a system adapted to the soil conditions and to the salts which are thus contained in the latex.

Coagulation with tannin has been partially adopted, yet the rubber thus obtained has an unattractive, opaque appearance; not realizing a good price.

A number of *Kickxia* samples were investigated, which had been prepared by the introduction of carbonic acid and the blowing in of air. The report says on this subject:

"It was demonstrated by testing, that the carbonic acid process is not practicable for *Kickxia* latex; an observation which was also confirmed through the investigations of Dr. Marckwald in East Africa, and must likewise be extended to *Manihot* latex."

CASTILLOA, FICUS, HEVEA, ETC.

Regarding above samples, special approval is expressed of *Hevea*, which, it is remarked, with favorable soil and the right preparation, will yield rubber of a thoroughly first-class character.

The *Castilloa* samples were relatively good, but, it is added, the cultivation of this variety is hardly to be recommended, on account of its requirements and its only yielding third-rate qualities.

RUBBER FROM BARK.

Among other points which have reached a technical solution, is the question of the extraction of rubber from the barks of trees; thus utilizing a sub-product. On the other hand, the trials made as to the profit attending the operation have not yet been conclusive. *Kickxia* bark yielded about 3.5 per cent. of wet rubber, while *Manihot* bark yielded about 2 per cent. of rubber. The report estimates, however, that the barks actually contain about double the above-named quantities of rubber.

The rubber thus obtained was of satisfactory quality and could be successfully vulcanized. The work was carried on in two directions:

1. Finding whether by working up large quantities at the same time, it was possible to reduce the consumption of power.

2. Finding whether the yields could be increased by working up fresh material.

As illustrating the principle involved in the last-named problem, it is remarked that in the working up of gutta percha leaves and bits of wood, relatively large quantities of gutta percha were extracted from fresh material, while there was little or no yield from dry material. Similar results attended experiments with parts of gutta percha plants from New Guinea. These investigations are being continued.

FERTILIZING.

Working from both ends of the line of investigation, the composition of the ashes of crude rubber has a special connection with the quality. This composition is directly dependent upon the soil of the plantations. As the report remarks, lime and magnesia salts, as well as phosphates, exercise a different, but in all cases important, effect upon the rubber to be obtained. Experiments in East Africa personally conducted by Dr. Marckwald, and since his return, followed up by Professor Zimmermann, will be fully dealt with in the next quarterly report of the "Zentralstelle."

One important feature of these new investigations is based on the fact that the absence of certain salts in the soil has been found to lead to the production of inferior qualities of rubber, notably in the case of *Hevea*. As to how far it is possible to supply these salts artificially by fertilization, is a subject on which the "Zentralstelle" is now working.

VISCOSITY OF RUBBER.

Prominent among the subjects of physical tests, were those as to the viscosity of rubber; the necessary apparatus having been to a great extent reconstructed. In this connection, it is remarked that viscosity gives extremely valuable indications as to the quality of rubber and as to the durability of the articles which may be made from it. Yet it is added, it does not give any values of general application, but only of a comparative nature.

OIL FROM KICKXIA SEEDS.

Seeing the preponderating importance of *Kickxia* in Kamerun, the question of the extraction of oil from its seeds is of considerable importance to German rubber-growing interests. The opinion is expressed that the profitable utilization of the seed depends upon the removal of the bitterness noticeable in the oil-cakes, in order to be able to use them as feed. It will be necessary in the first place to elucidate the chemistry of the bitter substance present. If this is not successful, then the whole of the oil must be obtained by pressing under heat, or otherwise extracted and used for technical purposes.

Hitherto *Manihot* seeds only yielded 8 per cent. of oil against 26 per cent. in the case of *Kickxia*. The oil from the seeds of both trees seems to be of good quality and possibly serviceable as edible oil. For the definite solution of the above important questions a good deal of work is still necessary. The breaking of the hard *Manihot* fruit and the removal of the ligneous husk from the seed have been effected in a technically satisfactory manner.

GUTTA PERCHA.

A close investigation of the subject of New Guinea gutta percha is approaching completion; dealing particularly with the latices of the various trees yielding same, as well as with the components present which do not contain that substance.

Following up previous reports of the institution, it is recorded that the question of the improvement by treatment of inferior grades of gutta-percha, has now been satisfactorily solved. Provided that no considerable reduction takes place in the prices of the higher grades, it is claimed that this process will show a good profit, where large quantities of the raw material are being worked up.

SYNTHETIC RUBBER.

With reference to the numerous inquiries received during the year as to the prospective importance of synthetic rubber the report expresses the opinion that it will not have an immediate effect upon the development of prices. As it says:

"For the one method of extraction the original material seems to be too dear, while for the other it is not available in sufficient quantity. For the plantation cultivation of the German colonies, the only danger now, as in the past, lies in the rapid development of the plantations of the East."

Such are a few of the salient points of this comprehensive 10,000 word report; the chief interest of which is the indication of further investigations along the progressive lines which mark the operations of the "Zentralstelle," under the skilled and enterprising direction of Dr. Marckwald and Dr. Frank, as a section of their laboratory.

THE HENRIQUES CHEMICAL LABORATORY, BERLIN.

A REMARKABLE instance of continuity in methods of analytical research is afforded by the history of the "Chemical Laboratory for Commerce and Industry," founded July, 1890, in Berlin, by the late Dr. Robert Henriques; a name familiar to the last generation of rubber scientists. From the inception of his enterprise Dr. Henriques devoted attention to the establishment of purely scientific bases for analytical work connected with the rubber industry. It is true that the investigations of Wallach, Gladstone and Hibbert, Tilden and others had more or less fully covered the ground, but the utilization of their experiences for strictly analytical purposes, was hardly practicable.

Another of his special subjects was the theory of vulcanization; in addition to the chemistry of the manufacture of rubber substitutes.

Towards the latter part of the year 1900 Dr. Henriques fell ill, dying two years later. On June 15, 1901, Dr. Edward Marckwald took over the laboratory; Dr. Fritz Frank being associated with him from April 1, 1902. Above are portraits of the two last named chemists, who are still at the head of the establishment; the memory of Dr. Henriques being perpetuated in its title:—"Chemical Laboratory for Commerce and Industry—Dr. Robert Henriques' Successors—Proprietors, Dr. Edward Marckwald and Dr. Fritz Frank." The scientific bases established by Dr. Henriques have been developed by his successors.

Early in 1904 Dr. Frank became sworn expert for rubber and allied branches, to the Berlin Provincial Tribunals I, II and III; being appointed in 1907 to similar positions with the Berlin and Potsdam Chambers of Commerce.

A new department was added in April, 1910, in the form of the "Central Rubber Bureau for the Colonies," the last report of which is dealt with in another column. This section was specially intended for the treatment of all questions affecting



DR. EDUARD MARCKWALD.

plantations; as well as the cultivation, extraction and preparation of crude rubber.

The laboratory is now divided into three sections:

- A. Investigations, reports, chemical and technical consultations; in all matters affecting the extraction of rubber, crude rubber, working of rubber, and rubber goods.
- B. Investigation and valuation of coal, turf, asphalt, mineral oil and tar; as well as the industrial products of same.
- C. Central Rubber Bureau for the Colonies.



DR. FRITZ FRANK.

When taking up its quarters in its present location, the laboratory was supplemented by an experimental plant, which has permitted the carrying out of experiments relating to various manufacturing processes.

Further enlargement of the establishment is now recognized as likely to be an unavoidable necessity in the immediate future.

The Manaos Rubber Congress of 1910.

TIME flies apace and the two years since the Manáos Congress of 1910 have passed rapidly. Hence, though apparently an episode of the past, the Congress in question, which lasted from February 22 to 27, 1910, still has a living interest for the rubber industry.

In the issue of THE INDIA RUBBER WORLD for April 1, 1910 (pages 233-240), the salient features of the Congress were described by the editor, who had attended on that occasion. Its permanent value as a link in the world's rubber history, largely consists, however, in the valuable contributions to technical literature afforded by the prize essays and other papers read on the occasion. The intention announced at the time of reproducing them has now been fulfilled by the publication of the official proceedings, compiled by Senhor Bertino Miranda, Secretary General of the Congress.* This volume, besides the text of the above-named papers, contains a full report of the proceedings of the Congress, outlined at the time in these pages.

As expressing the views of the Congress upon the questions before it, special interest attaches to the three groups of "conclusions" or resolutions adopted, dealing respectively with the commercial, extractive and agricultural features of the question, and formulated by the three sections in charge of those subjects. In the issue of THE INDIA RUBBER WORLD of April, 1910 (page 237), the second of these groups is reproduced, in course of which approval is expressed of Mr. Henry C. Pearson's advice to rubber planters not to abandon the smoking process. Some of these resolutions have been since more or less fully carried out, while all of them are still of interest to the rubber industry at large.

One of the most interesting features of the Congress was the rubber exposition, the record of prizes awarded on that occasion forming an appropriate conclusion to the official report. The proceedings, as well as the exposition, were fully reported at the time in THE INDIA RUBBER WORLD, but the able work of Senhor Miranda in compiling such an interesting record of the Congress, calls for appreciation and recognition. The names of the competitors and the subjects of their essays are quoted below.

On the eve of another exposition, it is pleasant to recall the memories, social as well as technical, of the 1910 Manáos Congress. Let us hope that many of those who attended on that occasion, may be seen in New York in September.

PRIZE ESSAYS.

- I. How should the Amazonian soil be peopled?

COMPETITORS.

Dr. Augusto Ximeno de Villeroy. Prize.

Dr. Benjamin de Araujo Lima. Honorable mention.

- II. Can agriculture be successfully attempted in the valley of Amazonas?

In the affirmative case, what are the regions most adapted for that purpose, without injury, and even as an aid to the extractive industries?

COMPETITORS.

Carlos Eugenio Chauvin. Prize.

Dr. Esmeralde Coelho. Honorable mention.

- III. What are the advantages of planting rubber in the Amazonian regions, and where should this planting be carried out? Perhaps these advantages better assure the extractive richness of the rubber, rendering it more solid and connecting its extractive forces more closely with the soil?

Of the processes adopted for the extraction and coagu-

lation of the latex of the *Hevea Brasiliensis*, which should be preferred?

COMPETITORS.

H. C. Pearson. ½ prize.

Carlos E. Chauvin. ½ prize.

Dr. C. Cerqueira Pinto. Honorable mention.

(Mr. Pearson's essay was reproduced in THE INDIA RUBBER WORLD of October 1, 1911, page 12.)

- IV. Means of facilitating and developing mercantile navigation in the waters of Amazonas.

COMPETITOR.

James Williams. Honorable mention.

VARIOUS THESES AND ESSAYS.

Dr. Augusto Ximeno Villeroy.

- I. Same subject as prize essay IV.

- II. " " " " " II.

- III. " " " " " III.

(Dr. Villeroy, it will be recalled, had been awarded a prize in competition I, but further dealt with the questions propounded for the other competitions.)

Dr. Jacques Huber.

Methods of Extraction of the Latex of *Hevea Brasiliensis*.

J. M. Fonseca Lobo.

The Soil of the Amazonian Region.

J. A. Mendes.

The Production of Caucho.

M. Lamy Torrilhon.

President of the Syndical Chamber of Rubber Manufacturers, Paris.

Rubber and the Future of Brazil.

Emilio Castre.

"El Jebe."

Dr. Passos de Miranda Filho.

Means of Developing the Valley of Amazonas.

RUBBER TREES OR PINES.

Dealing with the general question of synthetic rubber, in the "Commercio do Amazonas" of Manaos, Senhor Amando Diniz urges that it would be preferable to plant *Hevea* and extract the latex after six years, thus getting directly the best rubber in the world, instead of planting pine trees. The latter, he states, only produces rosin after twenty-five years in sufficient quantity for distillation into turpentine. Then the isoprene has to be extracted by costly methods; the final result being only an artificial product.

AUTOMOBILE FIRE-FIGHTING APPARATUS AT BAHIA.

The city of Bahia recently called for bids for two automobile fire engines, together with a like number of ladder trucks, hose carriers and ambulances. Bahia being prominent in various movements connected with South American development, this step is of interest.

The rubber producing States of Brazil will be represented at the New York Rubber Exposition to be held the last of next September in the Grand Central Palace. The governor of Pará has issued orders that the rubber products that have been permanently on exhibition in Paris, together with additional exhibits prepared especially for the occasion, shall be shipped to New York.

**Anuaes do Congresso Commercial, Industrial e Agricola de Manáos, 1910.* (Proceedings of the Commercial, Industrial and Agricultural Congress), held at Manáos, February 22 to 27, 1910. (Manáos, 1911. 430 pp. Paper.)

Progress in Artificial Rubber Production.

GERMAN scientists have expressed the hope that success in the production of artificial rubber will be attained more quickly than was the case with artificial indigo. In dealing with the subject in "Kunststoffe," Herr Rassfeld (certified engineer) remarks that while it is as yet too early to cast a very favorable horoscope for artificial rubber, the numerous patents applied for and granted since the beginning of 1911, and the most recent literature on the subject illustrate how energetically work is being carried on; further showing that from a technical point of view we are a good way nearer the solution of the problem. Those who a year ago regarded competition between artificial and natural rubber as excluded from consideration, are now forced to admit that as the work now stands, artificial rubber if not (as was the case with indigo) conquering the world, will be in a position to exercise influence towards a reduction of the price of rubber.

DEPOLYMERIZATION AND POLYMERIZATION.

While Tilden and Harries had demonstrated with regard to natural rubber, that the hydro-carbon molecule of rubber is decomposed by depolymerization into isoprene, it would seem that at about the same time methods were discovered by which the polymerization of the isoprene molecule into the rubber molecule was effected. For this purpose several new methods have been discovered during the past year. In this way the question of polymerization offers less difficulty, the main question still being: Will it be possible to produce at a sufficiently low price the isoprene and kindred basic substances necessary for polymerization? The determination and recognition of the fact that these kindred (or in chemical terms homologous) substances are transformed by polymerization into substances homologous to rubber, may be regarded as discoveries of the highest importance. Herr Rassfeld adds that, without being too optimistic, we may regard these homologous substances with particularly hopeful anticipations. It is regarded as possible that these "rubber homologues" will be found to possess qualities rendering artificial rubber specially valuable.

PRODUCTION OF ISOPRENE AND KINDRED SUBSTANCES.

The production of isoprene and kindred substances is principally effected in two forms:

1. The reduction into isoprene of natural products containing the isoprene molecule.
2. The building up of the isoprene molecule from the start, by so transforming easily accessible products, that isoprene or its homologous substances may be obtained by division.

Hitherto the technical extraction of isoprene from natural products (such as turpentine) did not promise well, on account of the unsatisfactory yield, which Tilden had estimated at a maximum of 10 per cent.* Efforts have therefore naturally been directed to finding methods for increasing the yield. While formerly the vapors of oil of turpentine were conducted through pipes at a temperature of about 600° C. (1,112° F.) for the purpose of separating the hydro-carbon molecule from the turpentine, much better yields are now obtained by working at sub-pressure instead of ordinary pressure. Silberrad, it is added, conducts the oil of turpentine vapors at sub-pressure, through pipes heated to 450°-750° C. (842°-1,382° F.) the yield being 25-50 per cent. instead of 2-3 per cent., as by the old method, the low yield of which was due to the re-polymerization of the isoprene.

Still better results are claimed for two similar, yet independent, processes of Staudinger and Klewer, and of Harries. These inventors effect the decomposition of the oil of turpentine vapors—not by conducting them through heated pipes, but by

means of metal wires, brought to a red heat by an electric current. Herr Rassfeld calls special attention to the fact that the yield obtained by this method is 60 per cent. or more. While Harries works with atmospheric pressure, the other experts named likewise use the vacuum system.

In the decomposition of turpentine vapors into isoprene, as one part of turpentine gives two parts of isoprene an increase of volume takes place. In other words, the pressure is increased.

On the other hand the temperature depends upon the pressure. If the latter is artificially reduced (by working at sub-pressure) the vapors are rarefied and the temperature of decomposition sinks. As the polymerization of isoprene depends upon the temperature, a higher yield is in this manner produced; owing to the reduced formation of antagonistic agents.

Heinemann starts with the same object in view, of attaining decomposition at the lowest possible temperature. Only he uses the catalytic properties of finely divided copper or silver. Therefore, either he conducts the oil of turpentine vapors over these metals, finely divided, or he allows the decomposition to take place in copper or silver vessels. This inventor claims that decomposition is attained at 450° to 480° C. (842° to 896° F.), and that the yield amounts to as much as 50 per cent.

SUBSTITUTES FOR OIL OF TURPENTINE.

In both of the two forms already referred to, for the production of isoprene, progress has been recorded.

As oil of turpentine is relatively high in price, efforts have been made to use for obtaining isoprene the resinous residues of the extraction of that oil. It is added that the different copals (such as Manila and Borneo copals), and above all the resins which result from the purification of rubber, are suitable for the extraction of isoprene, by vacuum distillation at 250°-450° C. (482°-842° F.).

BUILDING UP ISOPRENE.

Particularly as to the second form of isoprene production (that of building up the isoprene molecule) has progress been made during the past year. The most important point is that up-building methods have been discovered, which are not so complicated as to involve their technical impracticability; in fact, methods which are not interesting solely from a scientific point of view.

Specially prominent in this connection are the Elberfeld Farben Fabriken, formerly F. Bayer & Co., whose chemists have discovered a number of processes leading more or less easily to the desired end. Thus Dr. F. Hoffman and his colleagues have been using as a basic material para-cresole, obtained from coal-tar and wood-tar, and which is derived from toluol, in the same way as phenole (carbolic acid) is derived from benzole.

In the search for shorter methods, it has been found possible to obtain isoprene derivate from zyklo-hexanole. It is remarked that coal-tar, which in the fullest sense of the word is a gold mine, will apparently present us with artificial rubber. Further basic materials for isoprene are furnished by wood spirit and pyroxylic acid, in the form of formaldehyde and acetone. Fusel oils, contained in crude alcohol, are another source of isoprene.

Finally Herr Rassfeld remarks: "Even if artificial rubber will never supersede the natural article, we are justified in hoping that the German chemical industry will succeed in placing upon the market, a rubber which will, on the one hand, help to regulate prices, and on the other will render our rubber manufacturing industry more independent of foreign supplies."

This contribution to the technical literature regarding artificial rubber will doubtless be found of interest.

*See INDIA RUBBER WORLD, September 1, 1911, p. 463.

The New York Rubber Exposition.

PRESIDENT TAFT TO ACT AS PATRON

WILLIAM H. TAFT, President of the United States, has consented to be the "Patron" of the International Rubber Exposition to be held in New York in September of this year. It is more than probable also that he will be present to open the exercises on September 23. Mr. A. Staines Manders has received the following letter from him:

THE WHITE HOUSE, WASHINGTON.

18th June, 1912.

MY DEAR SIR:

I have your letter of the 7th June and shall be glad to accept your invitation to act as Patron of the third International Rubber Exposition to be held in New York next September.

With thanks for the compliment implied in the request, I am,

Sincerely yours,

(Signed) WM. H. TAFT.

The Exposition will be divided into three sections—first floor, manufacturers of rubber goods and machinery; second floor, the allied trades and sundries; and the third floor, crude rubber (in which section over twenty governments will exhibit as well as many of the plantation companies), and crude rubber importers and dealers of this country. The Manufacturers' Section has the largest area of space.

An idea of the magnitude of some of the exhibits may be gained from the fact that one single space occupies over 5,000 square feet of space; another 3,500; another nearly 3,000, and many over 1,000 square feet. Only three spaces of the minimum size, viz., 10 x 10 have been taken; all the others are much larger.

No small retail selling stands—which are so often seen at exhibitions—will be permitted; as Mr. Manders states that the Exhibition will be a high-class trade display, to bring together all who are connected with the industry as buyers or sellers, or as manufacturers and producers.

An "Exhibition Rubber Club" will be fitted up, but not open to the public. It is being arranged for the use of exhibitors who wish to conduct their correspondence or talk business with customers away from their booths; it will also be available for members of the committee and delegates from other countries. A rest room for ladies will also be provided. There will be a small cafe on each of the first two floors, and a restaurant in the building; also telephone, telegraph and postal facilities.

Rubber flooring and tiling will be important features of the Exhibition and several manufacturers are making special mats to lay down in the front main entrance and avenues of the Exhibition. The Mechanical Rubber manufacturers are taking a prominent part; about seven of the leading firms have booked space, one for the purpose of arranging a specially large working exhibit. Exhibits of general rubber lines and sundries will be well to the fore.

Rubber menus and other novelties are being prepared by manufacturers for use at the Press Dinner and at several government functions that are to be held during the Exhibition.

One of the leading rubber concerns will show by a series of moving pictures, the process of manufacture of rubber goods, and the government of the Federated Malay States will take the visitors for a tour through a rubber plantation, showing the whole course of the production and preparation of the rubber for shipment.

The delegates to the conference of manufacturers, chemists, producers, and those interested in the industry generally, will meet on Tuesday, September 24, and continue these meetings

for one week. Important papers will be read by visitors from the various countries of the world. Mr. Henry C. Pearson will preside.

The Government of Ceylon has appointed Mr. F. Crosbie Roles, Managing Editor of the "Times of Ceylon," to be its commissioner in New York; the Government of the Federated Malay States is sending Mr. Leonard Wray I. S. O.; Dr. Dahne will come on behalf of the Government of Brazil. The Planters' Association of British Malaya has arranged with Mr. Cyril E. S. Baxendale to be present as its representative. Mr. W. Shakespeare, a well-known merchant of Ceylon who is interested in rubber plantations, will also visit the Exhibition.

Numerous makers of machinery have secured large spaces and will all show machinery in motion to illustrate the treatment of the rubber by different machines.

Seventy Estates will exhibit rubber in the Federated Malay States Government Section, to the total weight of about twelve tons. The erection of some of the large government stands is already being proceeded with, and the designs that have been executed show that they will be of a most elaborate character. The reclaimed rubber and kindred concerns will make a fine display. Some of the firms have booked large spaces; one particularly, which intends to arrange a working exhibit.

This is not to be an annual exhibition. It will doubtless be four years at least before a similar one is held in this country.

The Motor and Accessory Manufacturers' Association has sent the following letter to the management:

THE MOTOR AND ACCESSORY MANUFACTURERS,

17 West 42nd street,

New York, N. Y., June 11, 1912.

Office of Manager,
WILLIAM M. SWEET.

MR. A. STAINES MANDERS, Organizing Manager,
New Grand Central Palace,
New York, N. Y.

DEAR SIR:

Your favors of June 4th and 10th, respectively, requesting further decision on the subject of application of this association's rules and regulations to your proposed Exposition, were duly received. Replying would advise, that inasmuch as this association has not exercised jurisdiction, any exhibit by a member of this association necessarily would be violating no rules or regulations of this association. This decision is rendered on the understanding that automobiles will not be exhibited.

Respectfully yours,

THE MOTOR AND ACCESSORY MANUFACTURERS,
(Signed) William M. Sweet,

The National Association of Automobile Manufacturers also state that it would not be against their "rules for members" to exhibit if they wished.

Exhibitors have the right to print and issue their own invitation tickets to their friends and customers, and a specially low admission has been arranged for *bona fide* employees, or work hands in rubber mills and factories of the allied trades.

The following notice will be printed on all tickets so that competitors of exhibitors, who are not represented, will not secure an unfair advantage:

"No person other than an Exhibitor, or an Exhibitor's Representative is allowed to canvass visitors or exhibitors for orders, or for any purpose whatsoever, or to take sketches or photographs of the exhibits. Any transgression of this rule renders such person liable to immediate expulsion from the building, and this ticket is issued and accepted on this condition."

The manufacturers of chemicals, and the allied trades generally are already well represented, having booked up space early.

PRIZES TO BE AWARDED AT THE EXPOSITION.

The Rubber Growers' Association, London, offer their gold, silver and bronze medals (each with diploma) for the three samples of Plantation Rubber (irrespective of the method of preparation or country of origin), specially entered for the competition, that may be placed highest by the jury.

The conditions are as follows:

- 1.—The Competition is open without entrance fee to anyone engaged in any part of the world in the growth of rubber upon plantations, and entries may be made either by the owners of any such plantation, whether individuals or companies, or by the executive superintendent or manager.
- 2.—Competitors may send in more than one sample, but must forward a separate entry form for each exhibit.
- 3.—No sample will be accepted for the Competition unless it has a minimum net weight of 112 lb. packed into one case.
- 4.—No brand or identifying mark of any kind must appear on the actual rubber, but the duplicate entry form (see Rule 10), fully filled up as prescribed, must be enclosed in the case. Competitors may attach to this cards giving supplementary information as to the place and method of production, the postal address of the estate, the office of the owners, etc., for the benefit of manufacturers or possible buyers. Portions of each sample received within the prescribed time will be placed on show in the Raw Rubber Section of the Exhibition, adjoining the general exhibits of producing countries, and all the foregoing information will be attached to the samples by the Exhibition staff after the awards have been made.
- 5.—Competitors will be required to certify on the Form of Entry accompanying the exhibit the genuineness of any sample sent in for competition and to have their forms countersigned by an official of their local association, but in the case of estates unconnected with any association, the signature of the nearest British Consul or other recognized local official will be accepted.
- 6.—The awards will be made immediately on the opening of the Exposition, without scientific or chemical tests and merely on the basis of commercial value, by a jury consisting of not fewer than seven members selected from the raw rubber experts of New York.
- 7.—The decision of the Jury shall be final in all matters connected with the competition.
- 8.—At the close of the Exposition all samples sent in will be sold by the Exposition authorities, if possible by auction, to the regular consumers of such rubber, and the net proceeds remitted to the competitors.
- 9.—All samples must be delivered *carriage paid* to the building between 10th and 16th September, addressed:
A. STAINES MANDERS,
Manager, Rubber Exposition,
Merchants' and Manufacturers' Exchange,
Grand Central Palace,
46th and 47th streets, Lexington avenue,
New York City,
and marked "RAW RUBBER," with country of origin, in bold letters. (Note.—This is necessary, New York being in a protective country; all raw rubber is admitted duty free, but if marked it will facilitate Customs entry). The samples will be unpacked, displayed and covered by Fire Insurance, free of charge to competitors.
- 10.—Forms of Entry (in duplicate) may be obtained from the Secretary, Rubber Growers' Association, 1 Oxford Court, Cannon street, London, E. C., and from Rubber Planters' Associations in all parts of the world, and one copy thereof must be returned not later than the 10th August, 1912, to A. Staines Manders, Manager, International Rubber and Allied Trades Exposition, Grand Central Palace, 46th and 47th streets, Lexington avenue, New York City. All letters bearing the post mark of the 1st August, 1912, will be accepted as entries.

NOTE.—Consular Invoices upon the forms supplied by the Government of the United States of America must be prepared for each shipment, and legalized by declaration before the Consul at the shipping port. Upon completion they should be forwarded with the shipping documents to Mr. A. Staines Manders, at the address stated above, who will clear through Customs.

Mr. A. W. Stedman has been appointed commissioner for the Commercial Association of Manáos, Brazil, and also as a commissioner for Matto Grose. Brazil will have about 5,000 square feet of space at the exhibition.

NOTES OF THE RUBBER CONFERENCE.

Mr. Cyril E. S. Baxendale has been appointed by the planters of the Federated Malay States, and will read a paper in connection with the rubber industry of that country.

Dr. Frederic Dannerth has accepted the position of honorary secretary of the Conference.

F. A. Stockdale, Esq., honorary secretary of the Permanent Exhibition Committee of British Guiana, will have a paper read in reference to the rubber industry in British Guiana.

T. W. Miller, Esq., of the Faultless Rubber Co., will read a paper on dipped rubber goods.

Francis E. Lloyd, Esq., recently resigned from the Alabama Polytechnic Institute to take the position of MacDonald, professor of Botany, McGill University, Montreal, Canada, will read a paper upon "Some Effects of Acclimatization Upon Guayule."

Dr. L. E. Weber, of Boston, will read a paper on some important subjects in connection with rubber chemistry.

As invitations have only recently been issued, it is impossible to say the exact number of papers that will be read and their subjects, but in our next issue we hope to be able to give a full list.

It is expected that about 300 delegates from different countries will visit New York to take part in the Exhibition and Conference.

Dr. D. G. Boeor, secretary of the Hungarian Association of Chemical Industry, will be in New York, and has indicated his intention of taking part in the Conference.

Dr. Huber, of Pará, the great rubber expert of Brazil, has intimated his intention of being present on behalf of the government and will attend the Conference.

ADVERTISING SOLICITORS UNAUTHORIZED.

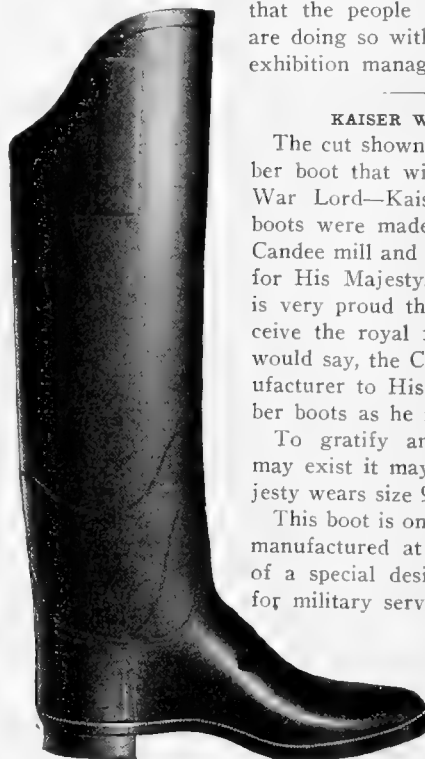
We have been asked to state that the management of the New York Rubber Exposition has not authorized any firm or person to solicit orders for advertisements or souvenirs of any description, and while a handbook of the Exposition will be published, no advertisements will be solicited for it. Manufacturers will therefore understand that the people who are troubling them are doing so without the authority of the exhibition management.

KAISER WILHELM'S BOOTS.

The cut shown herewith pictures a rubber boot that will be worn by the great War Lord—Kaiser Wilhelm II. These boots were made on special trees at the Candee mill and are now on the high seas for His Majesty. The Candee Company is very proud that its efficiency is to receive the royal favor, or as the English would say, the Candee mill is now "Manufacturer to His Majesty," for such rubber boots as he requires.

To gratify any public curiosity that may exist it may be stated that His Majesty wears size 9.

This boot is one of the handsomest ever manufactured at the Candee mill and is of a special design that company makes for military service in Europe.



THE RUBBER CLUB OF AMERICA.

THE following are the officers and committees of the Rubber Club of America for the current year:

Frederick C. Hood, *President*.
George B. Hodgman, *Vice-Pres.*
J. Frank Dunbar, *Treas.*
Harold P. Fuller, *Secy.*
John P. Lyons, *Asst. Secy.*

HONORARY VICE-PRESIDENTS.

L. Dewart Apsley George H. Hood
Augustus O. Bourn Alexander M. Paul
John H. Flint Henry C. Pearson
Arthur W. Stedman

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L. D. Apsley, Apsley Rubber Co., Hudson.
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George H. Hood, Hamilton, Massachusetts.
A. M. Paul, Davidson Rubber Co., Charlestown.
Henry C. Pearson, INDIA RUBBER WORLD, New York.
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H. E. Sawyer, United States Rubber Co., New York.
E. S. Williams, United States Rubber Co., New York.
H. E. Raymond, B. F. Goodrich Co., Akron.
F. H. Appleton, F. H. Appleton & Son, Boston.
F. H. Jones, Tyer Rubber Co., Andover.
G. E. Hall, Boston Woven Hose and Rubber Co., Cambridgeport.
A. L. Comstock, American Rubber Co., Cambridgeport.
E. E. Wadbrook, Arnold & Zeiss, New York.
H. S. Firestone, Firestone Tire and Rubber Co., Akron, Ohio.

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H. C. Pearson INDIA RUBBER WORLD, New York.
H. E. Sawyer, United States Rubber Co., New York.
E. E. Wadbrook, Arnold & Zeiss, New York.
F. H. Jones, Tyer Rubber Co., Andover, Massachusetts.

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H. E. Sawyer, United States Rubber Co., New York.
C. J. Bailey, C. J. Bailey Co., Boston.
W. H. Gleason, Revere Rubber Co., Chelsea.
E. E. Wadbrook, Arnold & Zeiss, New York (Secretary).

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E. F. Dewing, Boston Rubber Shoe Co., Boston.

ENTERTAINMENT COMMITTEE.

W. L. Proctor, Enterprise Rubber Co., Boston (Chairman).
J. H. Learned, Revere Rubber Co., Boston.
A. T. Baldwin, Walpole Rubber Co., Walpole, Massachusetts.
I. F. Burnham, Stoughton Rubber Co., Boston.
E. H. Kidder, United States Tire Co., Boston.

SPORTS COMMITTEE.

W. G. Page, Hood Rubber Co., Boston (Chairman).
E. L. Phipps, United States Rubber Co., Boston.
W. L. Pitcher, Easthampton Rubber Thread Co., Easthampton.
R. L. Rice, Hood Rubber Co., Boston.
W. J. Kelly, Arnold & Zeiss, New York.

DINNER COMMITTEE.

C. A. Coe, United States Rubber Co., Boston (Chairman).
W. E. Barker, United States Rubber Co., New York.
R. L. Rice, Hood Rubber Co., Boston.
R. B. Baird, Rubber Trading Co., New York.
Griswold Stowe, Stowe & Woodward, Campello.

THE RUBBER SECTION OF THE AMERICAN CHEMICAL SOCIETY.

At a meeting held on June 5, the following committees were appointed:

GENERAL RUBBER CONSIDERATION COMMITTEE.

D. A. Cutler, Rubber Goods Manufacturing Co., chairman,
H. von der Linde, Continental Rubber Co.,
W. E. Piper, Boston Rubber Shoe Co.,
G. T. Cottle, New York Insulated Wire Co.,
A. D. Hopkins, Boston Woven Hose and Rubber Co.,
D. Spence, Diamond Rubber Co.,
D. Whipple, 114 Liberty street, New York City,
C. R. Boggs, The Simplex Electrical Co.,
H. Fay, Massachusetts Institute of Technology,
W. C. Geer, The B. F. Goodrich Co.

ANALYTICAL COMMITTEE.

Dorris Whipple, 114 Liberty street, New York City, chairman,
J. W. Schade, The B. F. Goodrich Co.,
P. H. Walker, Bureau of Chemistry, Washington, District of Columbia,
J. B. Tuttle, Department of Commerce and Labor, Washington, District of Columbia,
G. T. Cottle, New York Insulated Wire Co.,
George Oenslager, Diamond Rubber Co.,
W. A. Ducca, India Rubber Co.

COMMITTEE ON SPECIFICATIONS.

C. R. Boggs, The Simplex Electrical Co., chairman,
G. H. Savage, American Steel & Wire Co.,
H. Fay, Massachusetts Institute of Technology.
W. C. Geer, The B. F. Goodrich Co.,
H. B. Rodman, Pennsylvania Railroad,
D. A. Cutler, Rubber Goods Manufacturing Co.

It was also decided that the General Rubber Consideration Committee would ask all the members of the Section to submit the best method for analyzing rubber goods that is known to them today; that the committee would then select the best method and submit this to the American Chemical Society, asking the society to publish it as the best method known at the present time. The Analytical Committee will in the meantime and in the future attempt, by research and such other methods as it may select, to revise this adopted method from time to time, as may seem best for the interests of the Rubber Section; the object being that any chemists in the country who may have occasion to analyze rubber goods, may have an authorized standard method to proceed with their work.

When this has been accomplished there should not be, as appears to be today, such a variance in the results reported from different chemists who analyze vulcanized rubber products. The Section hopes to have this accomplished so that it may be announced at the coming International Conference in September.

PACIFIC COAST RUBBER MANUFACTURERS' ASSOCIATION.

The following men were recently elected officers of the Pacific Coast Rubber Manufacturers' Association: Joseph V. Selby, of the Boston Woven Hose and Rubber Co., president; C. H. Chase, of the Bowers Rubber Works, vice-president; Geo. N. Didion, secretary, and W. B. Hechmann, of the United States Tire Co., treasurer.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

A GENERAL round of the various rubber establishments finds a fair degree of contentment with the general trend of trade. To be sure quotations of crude gum of several varieties are not exactly satisfactory to either buyer or seller, and sales are not reaching that magnitude which has sometimes been the case. However, a good deal is moving in the aggregate, even though individual transactions may seem small.

There has been a more contented spirit displayed by the rubber clothing men than by the garden hose manufacturers, but the latter seem to be having their inning about this time, and they are improving their opportunity.

The demand for mechanical goods seems to have, to some extent, deteriorated into a retail business. Purchases are smaller, but to compensate, at least in part, there are more of them. Druggists' sundries are going well. Boots and shoes have been in good demand, as far as orders are concerned. Automobile tires are being made and sold in prodigious numbers, and as far as your correspondent has been able to learn, every producing plant is behind its selling agencies in filling orders.

* * *

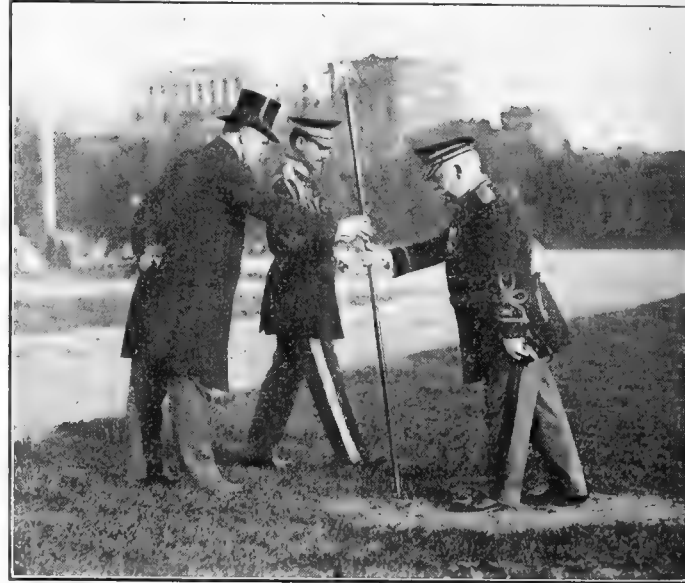
Speaking of automobile tires, the Back Bay, out towards Brookline, is rapidly being monopolized by the automobile trade. The Goodyear Improvement Company has purchased a large tract of land, nearly 130,000 feet, on Brookline avenue near the junction of Commonwealth avenue and Beacon street. The lot fronts the new Fenway Park baseball grounds, and extends 460 feet along Brookline avenue, and has a varying depth of from 175 to 380 feet, the whole having an assessed value of \$88,600. The purchase price is reported to be considerably above that figure. Plans are now being prepared for the erection on this lot of a handsome brick-faced, reinforced concrete structure, to be occupied by the Goodyear Tire and Rubber Co. of Akron as a distributing point for No-Rim-Cut tires. This company built its present Boston salesroom, a handsome five-story building on Boylston street, three years ago, but has found it altogether too small for the business it is doing. The company has adopted the policy of owning its headquarters in the various large cities, and this move is in line with that policy. As an indication of the extent of the business of this company a few figures from a confidential communication sent the members of its sales force may be of interest. On June 5 the day's production of automobile tires was 4,431 casings and 5,000 tubes. June 6 the number of casings was 4,600, and on June 7 the factory turned out 5,002 casings and 5,510 tubes.

* * *

Probably the proudest moment in the life of Francis H. Appleton was when he first met King George V of England, and presented to him the certificate of honorary membership in the Ancient and Honorable Artillery Company of this city. The second proudest time is yet to come, when as captain of this noted military organization, he will hob-nob with His Majesty on the 15th of this month at Buckingham Palace. The third proudest moment is pictured here. It is the moment when Governor Eugene N. Foss, of Massachusetts, delivered to Lieutenant Appleton the spontoon, the symbol of his new rank, captain commanding of the company. "Artillery Election" is an annual event in Boston, and June 3, 1912, was the 274th consecutive time that the members of this company have deposited their ballots on the head of the big bass drum.

The anniversary ceremony was an elaborate one. Fifers and drummers sounded the reveille at daybreak in front of the State House and the down town hotels. (In ancient days this was done under the windows of the members of the company.) The company assembled, marched to the State House, where the governor and staff took position in the line, then proceeded

to the historical Old South Church, where the election sermon was preached. Then the company marched to Boston Common, where the drum-head election followed, and Governor Foss received the resignations of the retiring officers and bestowed the insignia upon the newly elected ones, who were hailed by the booming of cannon.



CAPT. APPLETON RECEIVING STAFF FROM GOV. FOSS.

Captain Appleton presided at the dinner which was held in the historic "Cradle of Liberty"—Faneuil Hall—at which many notables were present. Several members of the rubber trade who were included in the assembly were warm in their praise of the grace and dignity with which he presided, and of the eloquence of his address.

* * *

The Hub Rubber Co., the incorporation of which was mentioned on page 457 of our June issue, will change its name to the Hubmark Rubber Co., in order to more fully advertise the trade mark of the Hub, which will hereafter appear on all the first-quality rubber boots and shoes made by the Boston Rubber Shoe Co. The Hubmark company will, for the coming season, confine its business to New England and the vicinity of New York City, and will enter upon an extensive advertising campaign, which will be in charge of Chester J. Pike, who has recently allied himself with the A. W. Ellis Advertising Agency of this city.

* * *

Harry Converse caught a good string of fish while on a recent outing at Rangeley. His best catch was an eight-pound salmon.

* * *

The J. H. Stedman Co. is the new name of the well-known concern J. H. Stedman & Co., Inc., at 555 Atlantic avenue. There is no other change but the name, which is more euphonious and significant of the corporate character of the business. The same officers remain, the accounts continue, and the business shows no change except that it is increasing steadily in importance and extent. The premises have been improved, the offices rearranged and enlarged, thus giving the main business office and the accounting department the needful additional space, and new offices at the Atlantic avenue front of the building for Messrs. Stedman and Turner.

* * *

Charles A. Coe, of the United States Rubber Co., is summering at Annisquam, on Cape Ann, and his principal recreation is

his motor boat, in which he takes short cruises around the waters of the Cape. Recently a large party of excursionists in a big motor boat got stranded on a bar, because of the unusually low tide, and Mr. Coe with his little launch made a rescue, which, while not especially thrilling, saved the party from the tedious wait for another tide and a wetting from the sudden downpour of the thunder shower which followed.

* * *

The Monatiquot Rubber Works Co., of South Braintree, has recently enlarged its fine reclaiming plant, increasing its capacity 33 per cent. in the production of naturized rubber. The main building has received a substantial addition, and another structure nearly as large has been built between it and the Monatiquot river, from which the company takes its name. A new office building has also been added. The company owns extensive rights to this river and its power, but its greatest value is not so much the power, as the quality of the water, which is remarkably pure and hence especially valuable for the processes carried on there. The plant is most favorably situated on a triangular plot of nearly 40 acres, between two branches of the New York, New Haven & Hartford Railroad, and has a siding of some 2,000 feet directly to the mills. President Robert C. Harlow (formerly of the Boston Woven Hose Company's Plymouth plant) and Treasurer J. H. Stedman have personal charge of the business at the South Braintree plant, while Sales Manager Merton A. Turner is at the Boston headquarters at 555 Atlantic avenue.

* * *

N. Lincoln Greene, manager of the American Rubber Co., has a host of friends in the trade, and they will all be interested in the announcement made last month in San Francisco of the engagement of Miss Adelaide Deming, of that city, to Mr. Greene. Miss Deming is the daughter of the late E. O. Deming, of San Francisco. For the last few years she has made her home with her sister in New York. She returned to her native city recently to visit her mother, and is receiving the congratulations of her many friends on her engagement. Mr. Greene is likewise the recipient of the hearty good wishes of his friends. No date has been announced for the wedding, but it is expected to take place in New York in the early autumn.

* * *

The Beacon Falls Rubber Shoe Co. has moved into its new building at the corner of Congress and Purchase streets, only a few rods away from its former location. The new premises were arranged under the personal supervision of Daniel E. Gray, the manager of the Boston selling agency of the company, and are most convenient for the steadily growing business of the company.

* * *

An event of interest in the rubber trade was the public dedication of an artistic bronze tablet in the Malden Public Library as a tribute to Elisha Slade Converse and his wife, Mary Diana Converse, for their munificent gift of the library building to the city as a memorial to their son.

The public exercises were held on the evening of June 19. Dr. Godfrey Ryder, chairman of the board of trustees, presided, and the principal address was by Dr. F. H. Rowley, formerly pastor of the first Baptist Church of Boston and now president of the Society for the Prevention of Cruelty to Animals. The clergyman was a personal friend of Deacon Converse, and his eulogy was a glowing, yet sympathetic one. The exercises were graced by a large attendance.

* * *

The cornerstone of the new Forsyth Dental Infirmary for Children was laid June 4 with impressive ceremonies, attended by the donors of the institution, city officials of Boston, members of the medical profession and leading citizens.

The exercises opened with prayer by Bishop Lawrence, after

which a letter was read from Cardinal O'Connell, expressing his regret at being unable to be present.

Then the following address was made by President Thomas Alexander Forsyth:

"In behalf of the trustees of the Forsyth Dental Infirmary my brother John and I wish to sincerely thank you all for your attendance at the exercises of the laying of the cornerstone of this infirmary, which is being erected in memory of our brothers James Bennett and George Henry Forsyth. The object of this infirmary is to bring about a stronger and healthier generation, which we hope to accomplish by starting with the children's first or temporary teeth and caring for these preparatory to their receiving their permanent teeth. We also intend caring for the children's adenoids and tonsils, so that when they reach the age of 16 years they will be in a good physical condition.

"When this infirmary is completed it will be the first of its kind in the world, and we are satisfied that the good work it will accomplish will be patterned by other cities in this country as well as abroad."

The cornerstone was then laid by John Hamilton Forsyth with the following brief address:

"To the glory of God and in loving memory of my departed brothers James Bennett and George Henry Forsyth I have laid this cornerstone, trusting the care and attention the children will receive in the Forsyth Dental Infirmary shall be the means, through God's blessing, of making a stronger and healthier generation in the years to come."

After the laying of the cornerstone, Mayor Fitzgerald of Boston was called upon and paid a warm tribute to the munificent contributions of a number of the private residents of Boston to the general welfare of that community and to the world at large, mentioning particularly Henry L. Higginson, Mrs. Robert D. Evans, and others, and concluded his address as follows:

"The Messrs. Forsyth have not only added this superb building to the group which is rising along the Fenway, but they have set us an example more precious than the wealth which they have devoted to this purpose. They have exemplified anew the ideal of the superior minds in all ages, that it is more praiseworthy to give than to acquire, and that happiness is obtained by serving others rather than ourselves. They may pass from this ceremony assured that they have done much to raise the standard of health and beauty here, to elevate the dental profession, to enhance the good name of Boston, and to stimulate and renew our faith in the essential goodness of mankind."

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

THE merger of The B. F. Goodrich and Diamond Rubber companies involves the consolidation of the manufacturing ends of these plants, the amalgamation of the sales departments in the various branch offices, and the hearty coöperation and united efforts of the management of each of the old companies. Taking into consideration that both of the plants from their inception have been organized upon the best business lines, that the buildings have been erected upon broad lines, and for the purpose of manufacturing various rubber goods, and that the two plants are located side by side with only a fifty-foot street between, that the side tracks and transportation facilities have been used in common and that the training of many of the factory foremen and workmen has been given in one shop and used in another, it is easily seen how, within a short time, the two factories will become one unit, with over 10,000 factory employees, working to a greater advantage than before.

The amalgamation of the sales departments in the various branch offices will evidently be an evolution rather than a revolution, taking some time. It is known to most Akron residents that the men in the branch offices and factory offices have all

the work they can do, and it is very difficult to secure good men to take the important positions held in the sales departments, both in Akron and in the branches; so that as many men, if not more, will be employed in the sales departments as were employed before, and new sales branches and sub-stations will no doubt be established, thus making room for men who will lose positions as heads of the branch offices. At the same time, where two branches are consolidated, the amount of business carried on will not be lessened, but increased. The volume of business will be greater, and consequently the number of people to take care of it must be greater. This company is actively pushing forward its foreign trade, and needs experienced help to handle the business in foreign countries. The hardest proposition for a rubber manufacturer is to secure capable men to fill the important positions, and the sales department is one of the hardest for which to secure them.

The Goodrich and Diamond companies have been fortunate in securing some of the most successful business men and rubber experts. The personnel of the new organization will represent some of the strongest talent in the rubber world. Bertram G. Work will be president. His father, Alanson Work, was one of the founders of the Goodrich company. Bertram G. Work is a graduate of Yale. After his graduation he learned the factory end of the rubber business. Starting at the bottom of the ladder, he worked in all the departments of the factory. Securing a thorough knowledge of this business, he was made general superintendent in 1892, and served in that capacity until 1902. He was then elected vice-president, and filled that office until 1907, when he was elected president. The magnificent growth of The B. F. Goodrich Co. has been under his administration, and is largely due his efforts.

A. H. Marks will be vice-president and general manager of the new company. He is a Harvard man. He was chemist for the Boston Woven Hose and Rubber Co. from 1895 to 1896, and chemist of the Revere Rubber Co., Boston, in 1897. In 1898, in company with W. B. Miller, he became identified with the Diamond Rubber Co. With them were W. B. Hardy and A. H. Noah. Under this organization the Diamond Rubber Co. has had its wonderful growth. Mr. Marks was president of The Alkali Rubber Co. His organizing ability and his knowledge as a rubber expert have given him the sobriquet, "Wizard of the Art."

E. C. Shaw, a Yale man, will be one of the second vice-presidents and works manager. Mr. Shaw is an engineer of high standing, and an organizer of much experience and ability. He has been identified with The B. F. Goodrich Co. since 1895.

H. E. Raymond, sales manager of The B. F. Goodrich Co., and W. B. Miller, who held the same position with the Diamond Rubber Co., will have charge of the sales department of the new company. H. E. Raymond will have the title of second vice-president and sales manager, and Mr. Miller that of second vice-president and assistant sales manager. Mr. Raymond has been closely identified with The B. F. Goodrich Co. for years, having successfully officiated in several capacities, and the great volume of trade, the thorough manner of covering the rubber field, both national and international, by this company, are attributed largely to the untiring efforts of Mr. Raymond.

W. B. Miller in 1898 was assistant manager of The Revere Rubber Co. Since that time he has been connected with the Diamond company. It is said that he entered the Revere company as an office boy, and later became salesman, and in fifteen years became assistant manager. Mr. Miller's experience, generalship, knowledge of men and salesmanship, have made The Diamond Rubber Co.'s selling force the compact and efficient power for business that it is today.

C. B. Raymond, secretary of the new company, has been connected with the Goodrich company for many years. His experience and ability have thoroughly equipped him for the duties of this new position.

W. A. Means, treasurer of The B. F. Goodrich Co., will be treasurer of the new company. He is a financier of large experience, and has been with The B. F. Goodrich Co. for some time.

The other officers of the board will be F. A. Hardy, chairman of the board; F. H. Mason, vice-chairman of the board, and G. E. Norwood, assistant treasurer.

STATEMENT OF THE B. F. GOODRICH CO. OF NEW YORK, AND SUBSIDIARY COMPANIES.

The following is the consolidated balance sheet showing the position of the company as at April 1, 1912, after the issue of its capital and the taking over of the assets and liabilities of the B. F. Goodrich Co. of Ohio and the Diamond Rubber Co. of Ohio.

Real estate, buildings, plant, machinery, goodwill, patents, etc., less unmatured purchase money mortgage of \$30,000.00.....	\$72,325,188.42
Investments in Other Companies.....	1,650,236.89
Stock in Treasury.....	266,990.38

CURRENT ASSETS:

Inventory of materials and supplies, goods in process and finished products, partly estimated	\$17,776,579.76
Trade accounts receivable less reserves for bad debts, discounts, etc.	5,035,571.22
Other accounts receivable.....	1,791,581.29
Bills receivable	463,037.05
Cash in banks and on hand.....	1,390,738.25
	26,457,507.57
Prepaid insurance, interest, etc., chargeable to future operations	177,681.20
	\$100,877,604.46

CAPITAL STOCK:

600,000 shares of common stock of \$100.00 each.....	\$60,000,000.00
300,000 shares of 7 per cent. cumulative preferred stock of \$100.00 each	30,000,000.00
(Redeemable in case of dissolution, liquidation, merger or consolidation at \$125.00 per share)....	\$90,000,000.00
Surplus	2,200,000.00

CURRENT LIABILITIES:

Bills payable	\$4,310,665.23
Accounts payable	1,173,811.75
Sundry accruals	153,542.98
The B. F. Goodrich Co. of Ohio	937,684.98
The Diamond Rubber Co. of Ohio	850,000.00
	7,425,704.94
Miscellaneous Reserves	1,251,899.52
	\$100,877,604.46

The combined profits of The B. F. Goodrich Co. for the period from January 1, 1908, to December 31, 1911, and of The Diamond Rubber Co. for the period from October 1, 1907, to September 30, 1911, after charging all expenses of manufacture and management and selling expenses but before providing for Depreciation of Property and Plant, and the combined gross sales, were respectively as follows, including in each instance the operations of the Goodrich Company for the calendar year and of the Diamond Company for the fiscal year ended September 30.

	Profits.	Gross Sales.
1908.....	\$4,615,098.42	\$22,580,107.63
1909.....	8,063,146.60	32,087,854.03
1910.....	6,384,059.56	45,800,534.93
1911.....	7,805,312.48	48,528,112.01

the Profits being equal to an average per annum of \$6,716,904.26.

* * *

The stockholders of The Goodyear Tire and Rubber Co. voted on May 28 to increase the company's capital stock from five million to ten million common, and from one million to five million preferred. C. W. Seiberling, vice-president of this company, states that the five million preferred will be issued at once. Instead of being redeemable at 105, as it is at present, it will be re-

deemable at 120 at the company's option after January 1, 1915, the holders of the present one million preferred having agreed to exchange their stock share for share for new preferred. The balance of the new preferred, four million, will be offered to the common stockholders at par. The new plan is wholly separate from the transfer completed some weeks ago, in which the stockholders received 100 per cent. stock dividend and rights to take \$340,000 treasury common stock at par.

The Goodyear Tire and Rubber Co. contemplates several additions and two new buildings. The first will be an addition of two stories to building 13, now used as a factory building. This building will be 296 feet x 60 feet, and of brick steel and reinforced concrete construction. Plans are being prepared for a large garage, 405 feet x 78 feet, and another new factory building, details of which have not been given to the public.

* * *

Much speculation has been put forth as to the reason why The B. F. Goodrich company made its cut in the price of tires at the beginning of the year. The writer has been informed, upon inquiry, that some manufacturers in this country were giving different prices of tires to various dealers and that to make a regular price to all, so that one wholesaler would not buy at one price and another at another price, The B. F. Goodrich Co. made a straight cut of 15 per cent., thus enabling the small consumer to stand on an equal footing with the large consumer. At the same time, the price of rubber would allow a cut in the price of tires, but other material and labor have not decreased in cost, but, if anything, have increased in the last few years. The fact that most of the rubber tire plants are, and have been for some time, running two shifts and some three, that it is not their policy to run night shifts unless compelled to, and the fact that many of the companies are back in their orders, leads the writer to believe that the demand is still greater than the supply. The writer does not believe that there will be any further price war between the rubber companies, at least for some time to come. The demand is increasing at least as rapidly, if not more so, than the supply, and the additional uses to which rubber goods are put, and the amount of new articles of which crude rubber is a part, that are placed on the market each year, enlarge the field of this line of business.

* * *

Old stockholders of The B. F. Goodrich Co., of record of April 6, were agreeably surprised with an additional dividend of \$5 per share on the old stock. This is a final dividend of the old company, the cleaning up before its transformation into the New York Company. This is \$5 additional to what was anticipated.

* * *

H. B. Dodd, of this city, formerly with The Diamond Rubber Co., has recently received a patent on a tire which he calls the "Dreadnought," the claim for which is that it does away with the inner tube. The casing is all in one piece, which grooves the bead which the tire fits. The bead is held in place by a steel rim which is clamped over the bead by bolts from the outside. The Dreadnought tire differs from the ordinary tire in that the strips of fabric in it lap around the bead and go back into the body of the tire, and are thus vulcanized. Mr. Dodd is now making a test trip of the tires.

SUPPORTING LOCAL INDUSTRIES.

An interesting feature of the recent Jersey City local exposition (held under the motto "Know Your City"), was the exhibit of the Jersey City fire department. It included three lengths of fire hose, prominently branded with the names of the Eureka Fire Hose Manufacturing Company, New Jersey Car Spring and Rubber Company, and Voorhees Rubber Manufacturing Company; all of which, it is understood, furnish hose to the local fire department.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

RUBBER news in Chicago lies buried so deep beneath political discussion at the time of writing, that it is somewhat of a task to unearth it. The city is up to its neck in the Republican National convention. As an instance of the present state of the average business man's mind, your correspondent approached a manager of a local rubber goods concern who was busily engaged in reading a communication on his desk. "What do you think of the rubber situation in Chicago just now?" was asked. Without looking up and still in a brown study over the paper in hand, the manager replied offhand, "Oh, I think it'll be Roosevelt, don't you?"

* * *

Chicago weather during June has been a series of phenomenal conditions, and despite this fact reports that business is good are heard on all sides. Only one or two warm days have visited us as yet and still for the most part the days have been bright and sunny. A cool spell—some say "cold"—has struck us just now and this always more or less affects the rubber trade in general. Tennis shoes seem to have a remarkable sale throughout the Middle West and the dealers in this staple are always to be found with smiling faces, except in cases where the orders exceed the supply.

* * *

One of the interested spectators of the convention was Edward R. Rice, manager of sales of the United States Rubber Co. Mr. Rice, in company with Kimber L. Barton, of Kansas City, Richard C. Hall, the western sales agent with headquarters in Chicago, and A. F. Solbery, Mr. Hall's assistant, attended the convention nearly every day.

"It's pretty hard for me to get away from the office, too," said Mr. Hall, "because our sales in tennis shoes are remarkable. We have been making shipment after shipment and just simply can not make them fast enough to supply the demand. It would seem that with the cool weather we have been having, the demand would not be so great, but from the number of orders that are rolling in there must be some fine 'tennis' weather throughout the West."

* * *

"In spite of the cold weather we are keeping right up to the standard," said A. W. Moore, local manager of the Firestone Tire and Rubber Co.

* * *

R. T. Davis, local manager of the Boston Woven Hose and Rubber Co., with offices at 667 West Lake street, has just returned from a two weeks' visit to Boston where he attended the conference of managers. He expressed himself as pleased with the trip, despite the fact that he returned to find work piled mountain high on his desk.

* * *

No changes have been made in the local sales force of the Diamond Rubber Co. as a result of the consolidation of that company with the Goodrich people. A. S. Franklin, assistant manager, reports business as "booming."

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In speaking of the solid Staggard electric tire which the Republic Rubber Co. manufactures, Manager J. W. Maguire, of the local branch, declared that this tire increases the resilience and adds to the comfort and enjoyment of electric motoring.

"The studs on the tire are so arranged that the intervals between the studs in one row and those of the adjoining row are placed at alternate distances so that the studs are always on the ground as the tire revolves," he said. "This gives a smooth, continuous cushion tread, the depressions or grooves between the studs giving added elasticity to the tire. This makes for easy and comfortable riding. Each of the studs takes hold on the

paving, making motoring safe on wet pavements and slippery streets. Women driving electrics are discovering that the Republic solid Staggard tire not only gives protection against accidents but makes chains unnecessary."

John H. Kelly, formerly Chicago manager and now general sales manager of the company with headquarters at Johnstown, Ohio, will be in Chicago to witness the reliability run to Milwaukee between the Chicago Motor Club and the Chicago Athletic Association.

* * *

Gen. C. Edward Murray, treasurer of the Empire Rubber Manufacturing Co., together with Col. Margerum, an old school chum, were two of the most interested visitors to the convention. F. B. McKay, local manager of the company, also attended the big political fight. He expressed himself as pleased with both the spectacle and the way that the rubber hose business is booming just now. George M. Munsa, formerly western salesman for the company, has been placed in charge of the local tire end of the business. He is succeeded on the coast by C. W. Linde, of Portland, Oregon, formerly manager of one of the coast branches of the Pacific Hardware and Steel Co.

* * *

Claire Kenyon, of C. Kenyon & Sons, Brooklyn, New York, was one of the visitors to the convention.

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S. E. Linton, formerly with the Livingston Company of Bloomington, Illinois, has joined the sales force of the Duck Brand Company in Chicago.

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

A NEW tax law passed at the last session of the Rhode Island General Assembly will exact a heavy toll from the rubber industry of the State. There are eight corporations engaged in this industry which come in under the provisions of the law because of the size of their capitalization.

Under the old method of taxation real estate and personal property were the two principal sources of income from taxation, but under the new arrangement 40 cents is exacted from every \$100 worth of capitalization over \$100,000.

Taken in alphabetical order the rubber companies with the amount of their corporate excess and the new tax levy are as follows: American Wringer Co., \$1,070,738.25, \$4,282.95; Davol Rubber Co., \$134,956.05, \$539.82; Mechanical Fabric Co., \$557,096.49, \$2,228.38; National India Rubber Co., \$962,802.59, \$3,851.21; Phillips Insulated Wire Co., \$1,380,282, \$5,521.12; Revere Rubber Co., \$1,631,090.76, \$6,524.36; Washburn Wire Co., \$539,285.94, \$2,157.14; Woonsocket Rubber Co., \$824,864.93, \$3,299.45.

* * *

The hose room of the National India Rubber Co., at Bristol, which was closed about two months ago when the business of manufacturing fire hose, along with other departments, was moved to Cleveland, Ohio, is to be one of the rooms at the plant to be fitted for the purpose of manufacturing copper wire. This room is 200 feet x 40 feet. The work of putting in concrete pier foundations is nearing completion, and the task of constructing a concrete floor is to be started soon.

* * *

Business has picked up to such an extent at the plant of the Consumers' Rubber Co., Bristol, since the Walpole Rubber Co. assumed control of the reorganized corporation, that an addition is now being built.

The new structure is to be 50 feet x 30 feet, two stories high, and will be for the purpose of extending the calender and cutting departments. General Manager Terrence McCarty states that business is increasing at such a rapid rate that more additions will probably have to be made soon.

Early in June the manufacture of lawn tennis shoes at the National India Rubber Co.'s plant was decreased slightly, and the making of gum shoes was increased ten cases daily.

* * *

The main shaft in the wire insulating department of the National India Rubber Co.'s wire insulating department broke on June 18 following the installation of a new rope belt and the department was closed. Repairs were completed in two days and 200 persons returned to work.

THE RUBBER TRADE IN SAN FRANCISCO.

By a Resident Correspondent.

THERE has been enough warm weather in San Francisco during the past few weeks to cause people to realize that summer is on in earnest. Few men in the rubber business will venture much guess as to the future of business, and yet from their general remarks it is evident that all of them are now doing as well as could be expected. Nothing is claimed for the mechanical rubber business at the present time, owing to the close competition, but good money is being realized all around on the rubber tire business and druggist's sundries. A considerable amount of garden hose has been disposed of this summer. The salesmen who are now taking orders for fall delivery of rubber boots and shoes also report that they are meeting with considerable success. The conditions commercially never looked brighter than they do now, and it is safe to say that every rubber merchant looks forward confidently to a big year for 1913.

* * *

The Bowers Rubber Works report that they are now nearing the close of the most prosperous fiscal year in the history of their business. This firm has completed arrangements for opening a new branch house in Seattle, Washington. They have leased there a commodious store at 312 Occidental avenue, which they have fitted up with every convenience for a modern branch store, and will carry a full stock of the mechanical lines which they manufacture. The business of the new branch will be in charge of D. D. Tripp and F. A. Hollabaugh. Both of these gentlemen have been with the company in the sales department for a number of years, and are well qualified for their new positions.

* * *

R. H. Pease, president of the Goodyear Rubber Co., reports continued improvement in business:—"There has been an unusual business on garden hose, which has been exceptionally good on account of so much dry weather throughout the spring and past winter. Naturally the boot and shoe business, by way of advance orders, is coming in slowly, on account of our customers having carried over stocks, but prospects are excellent for a good fall trade."

* * *

C. C. Case, vice-president and general manager of the Revere Rubber Co., is now visiting the Gorham-Revere Rubber Co. in San Francisco.

Business with the new branch tire store of the Gorham-Revere Rubber Co. has opened up well. This branch is located at 569 Golden Gate avenue, and is fitted up with every appliance and convenience of a modern tire store. The Gorham-Revere Rubber Co. reports that the tire business has been very good, and that the garden hose business for 1913 is opening up very briskly, with a large number of orders for hose to start with.

* * *

The fire commissioners in San Francisco are again showing a tendency to vacillation in the matter of requirements for bidding on fire hose. Last month they made the way clear for open bidding by doing away with their own private specifications. It looks now as though they would readopt the specification system, but eliminate the chemical tests.

E. H. Parrish, foreign representative of the Gorham-Revere Rubber Co., returned last week from China, Japan and the Philippines. He was away for four months on this trip, and his orders total up to a sizable figure, indicating that there is a good rubber market in the Orient.

Mr. Halleck, president of the Ohio Rubber Co., is now visiting the trade in San Francisco and stopping at the St. Francis.

Mr. French, manager for the local branch of the Pennsylvania Rubber Co., reports that he has been doing an especially good business on the firm's vacuum-cup tires. He has recently returned from a trip to the Northwest, and states that conditions in that territory are very favorable.

The O. K. Vulcanizing Co. has been incorporated in Los Angeles, with a capital stock of \$50,000. The original subscribers to the stock are G. P. Hastings, U. B. Pitman and A. H. Jackson.

The American Rubber Co., of San Francisco, has organized a baseball team which is clearing up the "bushers" right and left. They do not find opposition enough in rubber circles for their prowess, and consequently have been playing in a league known as the Commercial League. The B. F. Goodrich Co. has organized a baseball team, and there is a promise that more will be heard of their ability anon.

The proposition of the United States Rubber Co. to distribute shares of stock to its employes has been looked upon very favorably on this coast. It is a popular move, and appeals to those employes who can afford to take the matter up as a profitable investment.

The fine new store of the Goodyear Tire and Rubber Co., out on Automobile Row, is rapidly nearing completion.

H. S. Firestone, president of the Firestone Tire and Rubber Co., whose headquarters are located at the corner of Van Ness avenue and Fulton streets is enthusiastic over the outlook for the future. He believes that there will be an enormous increase in the production of automobiles, and particularly in those for commercial purposes, especially in the line of trucks.

The Goodman Puncture Proof Tire Co. has recently been incorporated in Stockton, California.

SOYA BEAN OIL.

The rapidity with which soya oil has risen to popularity is hardly more interesting than the possibilities of its employment in the rubber industry and the manufacture of raw materials for the rubber trade. On a recent occasion when Dr. Frederic Dannert, the rubber chemist, was interviewed at his home in Passaic, New Jersey, he was found busy in an investigation of the oil and in answer to the question as to what he thought of the oil as a compounding ingredient, he said:

"Soya oil offers immense opportunities for the oil merchant and for the rubber manufacturer, but like many other interesting things it is being overlooked by both. The rubber goods manufacturers do not care to adopt new materials without some knowledge of their properties, and the manner of using them. On the other hand the oil merchants and importers have evidenced no desire to demonstrate to the manufacturers the possibilities of this material.

"It would certainly be very desirable if these two camps would get more clearly to understand the needs of one another."

THE CANADIAN ANKLE STRAP RUBBER.

THE ankle strap rubber, as a matter of fact, is very far from being new. It is a full generation old; but to a great many people, even in the rubber footwear trade, it would constitute a distinct novelty, for it has been little in evidence in the output of American rubber manufacturers for some years past. Catalogs of twenty years ago will be found to contain illustrations of the ankle-strap rubber. Then the illustrations began to drop out and the catalogs and price lists simply had a line under "sandals" and "croquets" saying "Ankle straps 10 cents extra." Lately few of the American companies have made any mention whatever of these shoes. But the Canadian Rubber Co. of Montreal, Limited, advertises and illustrates the



"RITA" ANKLE STRAP RUBBER.

women's "Rita," a croquet made with an ankle strap which the accompanying cut illustrates. The ankle strap really serves a worthy purpose. It is hardly necessary for city dwellers, but in the country, where in the spring and fall the mud is often deep and has a marked pulling effect on a rubber shoe, the ankle strap on a low-cut croquet often saves the shoe from being dislodged. Just why the shoe has lost its early prominence in the American trade is not obvious. Probably, however, the high-cut "storm" rubber, which is fairly proof against mud suction, has, in this country at least, largely taken the place of the former sandal and croquet with the ankle strap.

A CABINET FOR CRUDE RUBBER SAMPLES.

The accompanying cut is made from a photograph of a cabinet used by Alexander Macpherson, Toronto, Canada, for keeping samples of crude rubber, so that they can be referred to very



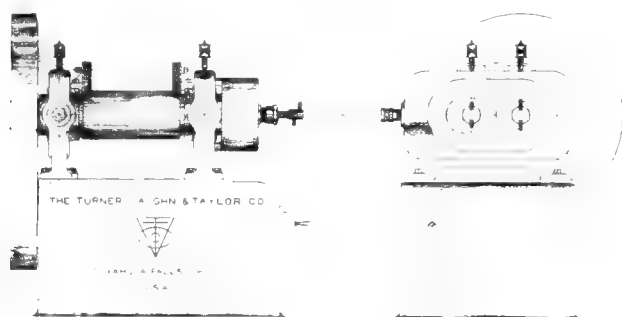
CRUDE RUBBER SAMPLE CABINET.

quickly. The container holds a dozen small boxes, as shown in the cut, and the whole cabinet costs less than \$1—as inexpensive as it is convenient.

EXPERIMENTAL MILL FOR LABORATORY PURPOSES.

MORRIS A. PEARSON, formerly with the Farrel Foundry and Machine Co., but now associated with the Turner, Vaughn and Taylor Co., Cuyahoga Falls, Ohio, in the capacity of rubber machinery designer, has recently designed an experimental mill for laboratory purposes, in which will be found several new and novel features.

The rolls are of the usual size, 6 inches by 12 inches, made of chilled iron, but fitted with a new type of steam connection. The whole machine is placed on a cast-iron base cored out underneath to receive the motor and reducing gears. The arrangement is such that both are easily accessible from the outside while the design is compact and neat. The controller of the motor is within easy reach of the operator, on the right-hand side of the base. A new type of automatic guide is used in order to get the greatest possible working space on the rolls. All gears, both connecting and driving, have cut teeth and are



AN EXPERIMENTAL MILL.

fully protected by means of substantial gear guards. The mill is complete in every way, with motor, gears, etc., ready for operation. It is of sufficient height to be set directly on the floor or flush with it and requires only 2 feet 6 inches by 3 feet floor space.

This mill is also built to accommodate varying speeds, in order to get different frictions. This will be true of experimental calenders as well, which are designed along the same line as the mill and to be used with it. Following an increased demand, a laboratory washer has recently been designed which will make the laboratory outfit complete.

In addition to the above, Mr. Pearson has developed a full line of mills, crackers, presses, etc., which are now ready for the market. The company above noted has been well known to the trade for the past 15 years, through the popularity of their Tub Washers and Reclaimed Water Separators.

QUAYULE AND RAW RUBBER.

Under No. 9018 the Bureau of Manufactures, Department of Commerce and Labor, publishes an inquiry from an American consul in a European country, who reports that a resident of his district would like to communicate with persons in the United States controlling guayule and raw-rubber interests in Mexico or Central America. He desires connections for his trade with European rubber industries, and estimates that he could dispose of about \$1,000,000 worth of this product to the local trade.

The factory of the Hardman Tire and Rubber Co., at Belleville, N. J., was seriously damaged by fire on June 1, the damage being estimated at \$150,000. The building was a modern brick structure and replaced one also destroyed by fire about five years ago. The factory had 200 employees.

SPECIFIC GRAVITY FROM A MANUFACTURER'S STANDPOINT.

THE following letter has been received from W. T. Bonner, Chemical Engineer, Trenton, New Jersey, in regard to the article which appeared on page 424 of our June issue, by Dr. Lothar E. Weber, on "The Significance of Gravity in Rubber Manufacture."

To the Editor of THE INDIA RUBBER WORLD:

Dear Sir:—The writer has read with interest Dr. Weber's article in the June edition of your paper on specific gravities of rubber compositions, the main idea being to show the difference between the actual and apparent gravities of rubber compounds.

Dr. Weber's position is a correct one, and should receive the unqualified approval of rubber manufacturers and chemists. That the true gravity of a composition must be equal to the gravities of its component parts is a fact, and under careful conditions will be found to agree.

However, Dr. Weber loses sight of a fact that is of great importance to the rubber manufacturer. It is not the relative difference between the apparent and the real from a technical standpoint, but rather the *indicated gravity* of the manufactured article as it appears and is used in commerce, and *not* of the compound from which the article is made. The question of air or *vacuo* occupying space in an article of rubber composition is not of as much importance to the manufacturer as the specific gravity of the article offered for sale. This is and should be to him as definite a standard as atoms and molecules are to the chemist. The manufacturer and his customer want to know the weight per volume of the goods as offered for sale in their commercial form. This should be as obvious to the chemist as it is to the manufacturer, but at the same time it is equally important that both fully understand both sides of the question.

For illustration take sheet packing—a square yard of a stated thickness weighs so many pounds. In its commercial shape it has a specific gravity to correspond to its commercial weight and volume. To disintegrate a sample and exhaust the air would give a true specific gravity of the compound, but a false standard of the goods or article. Volume and weight by which it is known and used would not agree. The fact that its true weight per volume is heavier has no bearing upon the market value, but it is a guide to the manufacturer, who by the difference can tell if his goods are "sponging" more than is good for quality and service.

Again—to carry the illustration still further—a manufacturer receives an order for "sponge" stock, one of the requirements may be that it not only float, but be capable of sustaining added weight before equaling that of water. A compound with a specific gravity as much as 1.35 properly sponged might fill the requirements. Then by taking the specific gravity of the finished goods it is simple to estimate not only how much lighter the product is than water, but how much added weight it will sustain.

By the foregoing it can be readily seen why a standard of specific gravity is just as necessary to the article in commercial form, as the actual or technical standard of the composition.

Atomic and molecular weights are constant. Variations are produced by additions and conditions. Even the rubber molecule undergoes a slight permanent expansion when vulcanized, and consequently is of lighter specific gravity than the uncured. While the work of Dr. Weber is of great value to the manufacturer, as a guide to intelligent work and exact conditions, yet the manufacturer's standard of gravity, as applied to his finished product, is to him of equal importance, and should be duly recognized.

W. T. BONNER.

The accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

AS pointed out more than once in THE INDIA RUBBER WORLD editorial columns, synthetic rubber is now an established fact, though not exactly a commercial article. It is, however, recognized by those chemists who are working on the subject, that it will never do to depend upon turpentine as the

SYNTHETIC RUBBER.

raw product of the isoprene which is to be polymerized into rubber. There seems to be a general agreement that

the raw material for the rubber manufacture of the future will be a carbohydrate, most probably starch, as this can be obtained from plants which can be grown cheaply almost anywhere. From inside information I have obtained, the problem of the moment is to find the particular ferment which will convert the starch into iso-amyl alcohol, which by a known chemical reaction can be converted into isoprene. The task of finding this ferment has proved a somewhat formidable one, but the chemists engaged say that ultimate success is only a matter of time, though at the moment they confess that there is no progress to report.

Whether there is anything or not in the Russian process which has been well reported in the press, it hardly seems likely that any one patentee or financial group will monopolize the profits of the future, as several patents have been granted both in England and Germany for somewhat similar chemical processes. Although the task of producing synthetic rubber is now in reputable hands, the energies of the quack operator show no diminution. Perpetual efforts, something on the lines of the evergreen Spanish treasure swindle, are being made to inveigle the ignorant capitalist into subscribing funds to finance the process prior to its sale for a fabulous sum. The details of a quite recent case are in my possession, but although they would make interesting copy, I don't know that I should be justified in giving publicity to them.

IN A recent case in a provincial law court it was stated by counsel, and evidently acquiesced in by the judge, that there were no secrets

SECRETS IN THE RUBBER TRADE.

now-a-days in the rubber manufacture, and that there was nothing underhand in a firm trying to get workmen

from another firm carrying on the same branches of the manufacture. From what I have gathered in conversation with manufacturers on the subject the above view is not generally held. It is agreed certainly that in a general sense the various processes of vulcanizing are common property, but the exact details with regard to particular goods are not to be found fully described in technical literature, and that this being so they can fairly claim to come in the category of trade secrets. Counsel in the case under notice said that since the taking out of Parke's patent in 1846 the cold cure process was well known to everyone in the trade, but he omitted to say that the process as applied has important factors of proportions and times, according to the nature of the rubber to which it is applied. It is a safe supposition that all these details are not known to every manager of a mechanical rubber goods factory, and that many of such managers would require the assistance of men familiar with the work, if they were suddenly called upon to produce certain qualities of cold cured goods.

Without giving particular instances I can call to mind many firms which make a specialty of certain classes of rubber goods, and the main reason why their supremacy remains unchallenged is that would-be competitors lack knowledge of the essential details of the manufacture. It is the attention to detail which counts for so much in the rubber trade, and until a book full

of detail is written by a man thoroughly conversant with his subject, it will be correct to say that trade secrets abound. With regard to the migration of workmen from one factory to another, this has, of course, always occurred, but employers usually guard against too much information being taken away, by making it a rule for men not to frequent departments other than those in which they are normally employed, an injunction, indeed, which generally applies to foremen and under-managers also.

"THE Chemistry of the Rubber Industry." is the title of the volume written by Mr. H. E. Potts, in Messrs. Constables' series "Outlines of Industrial Chemistry."

A NEW BOOK ON RUBBER.

It has already been reviewed by the editor (p. 450, June issue), but in accordance with custom I propose to say a word or two in this correspondence. A good deal of original work on rubber chemistry has been published in various journals in the past few years, and Mr. Potts has done good service in compressing the pith of this into his book, while giving the original references which those who have the time and inclination to do so can look up for themselves. In some ways the book might be called a small new edition of Weber, an author frequently referred to, and whom we find praised on one page and chided on another. Of course a good deal of what has been published by this or that author in recent years has been in the main a refutation of what had previously been announced authoritatively by another author; and seeing the complexities of the subject this roll of things seems likely to go on. The salient points of the chemistry of colloids are referred to in Chapter I, and though a good many purchasers of the book will probably skip this chapter, and pay more attention to its successors, this is of course no argument against the propriety of its inclusion. The fact that certain published methods of rubber analysis, which were once accepted as gospel, have since been shown to be utterly unreliable, does not seem to be known to all chemists who are connected more or less with rubber analysis; and I know of quite erroneous results being obtained by those who continue to use methods now proved to be quite fallacious. To such chemists Mr. Potts' book is a necessity, though I may say that there are many important details, with regard to the analysis of rubber goods, either not mentioned at all or only in a very casual manner.

It is interesting to see that he is not a convert to any of the various direct methods of estimating the amount of rubber, but is rather in favor of the simple and time-honored method of taking it by difference. The estimation of substitute by weighing the fatty acids instead of making a calculation from the loss in weight of the rubber after saponification is rightly advised, though with regard to this I see that it has recently been decided in Germany that the saponification method is quite unreliable. It depends on the amount of substitute present. In a single texture waterproof cloak containing 35 to 40 per cent. the determination can be made with sufficient accuracy, but if it comes to swearing to 2 per cent. in a cable insulation containing paraffin wax—well, the job should not be taken on by a novice. The amount of space devoted to the estimation of sulphur is quite justified, as it is recognized that the inherent difficulties are much greater than was formerly supposed. In the course of a brief resumé of the chemistry of reclaiming, the author rightly deprecates the too common use of the expression "devulcanized" in the case of products which have only had their free sulphur removed, and which in fact always contain

a higher percentage of combined sulphur than was in the rubber scrap before being reclaimed. References to original papers are a feature of the book which will commend it to many, with which remark I must for consideration of space close this notice of a book which will be a welcome addition to the library of those interested in the chemistry and manufacture of rubber.

UNDER this headline there is an interesting reference in the May issue of the INDIA RUBBER WORLD to the new boot brought out by the Goodyear India Rubber Glove Manufacturing Co. for miners' use. The advantages of "gum boots"

RUBBER BOOTS WITH LEATHER SOLES.

have long been recognized by those who have to work in wet ground, and the existing brands have given satisfaction to agriculturists, officers on stable duty, etc., but the drawback for the miner has been the rapid destruction of the sole. In the north of England lead mines, where access to the workings is frequently made along adits or day levels which also serve for the drainage of the mine, rubber boots have been in fairly regular use, though this is not so in collieries or mines worked by shafts. With the prolonged life afforded by the leather sole, which will not be ruined by a bit of granite or slate, there ought to be a greatly increased demand for rubber boots in mining, and although I have no personal knowledge of dredging work in Russia—a branch of mining largely on the increase—I should think that the new boot would be appreciated in that country.

MR. POTTS, in his book referred to in another paragraph, mentions chromium salts as being hurtful to rubber. I don't know whether this is based on any recent

CHROMIUM AND RUBBER.

researches, but the statement seems somewhat surprising. Weber utters no warning to this effect, and W. Thomson in his paper of 1891 puts chromium among the metals having no action on rubber. For some years past yellow chromate of lead has been used by balloon fabric makers in connection with rubber, in order to neutralize the effect of the actinic rays. Certainly the chromate of lead has of late been superseded by organic dyes of the same tint, but I have no evidence that this change has been made because of any supposed injurious action of the chromate on the rubber. Moreover Schidrowitz, in a recent lecture in London, discussed the matter of mixing chromate of lead with the rubber to protect it from the effect of light, nothing being said as to any danger being apprehended. Thus it can hardly be said that this is a case where the doctors are found agreeing. With regard to the use of chromium compounds in the rubber manufacture, perhaps the best known body is chrome green, the oxide which has long been regularly used, though not to any large extent, owing to its high price. At one time green cut sheet, in which it is used, was more largely made than it is today. Other uses are green single texture proofings, where the price allows of it, and the green enameled surface of certain surgical and druggists' goods. Brunswick green, which is used as a substitute for chrome green in single texture proofings, etc., contains chromate of lead as one of its constituents.

TROUBLE OVER A MEXICAN PLANTATION.

On June 17 El Palmar Rubber Estates, Limited, of Glasgow, Scotland, filed suit in the Supreme Court of New York against the El Palmar Estates, a New York corporation to recover \$316,515. This sum is alleged to be due as the result of a fraudulent sale of a rubber, cotton and sugar cane plantation in Vera Cruz, Mexico.

The defendant corporation sold the plaintiff this plantation on March 6, 1910. At that time the plaintiff claims it paid £107,500 for the plantation under a contract guaranteeing that it included 172,999 rubber trees, 220,000 coffee bushes and 200 acres of sugar. Instead, it is alleged there are only 139,625 coffee bushes, 67,000 rubber trees and 100 acres of sugar.

SOME LONDON RUBBER NOTES.

By an Occasional Correspondent.

THE East Indies Crude Rubber Trading Co., of London, which has been treating jelutong on a small scale in London, marketing it in a purified and drier form, but without extracting the resin, has been seeking additional capital in order to carry out its process in the East upon more extensive lines. One of the directors visited Sumatra some months ago, and fixed upon Palembang as the location of a new factory. With the saving in cost of transport due to purification and drying, and the further saving resulting from the handling of larger quantities, it is intended to place the jelutong on the market at lower prices. The product is turned out in two forms, as imitation of plantation crêpe and of thick sheet.

Agitation by dissatisfied shareholders in the United Malaysian Rubber Co. has not yet led to a Board of Trade inquiry upon the circumstances surrounding the flotation. Formed two years ago to exploit a process for the extraction of resins from jelutong, turning out material as crêpe rubber, heavy losses have been incurred. These were in part due to the process not having been technically perfected at the time of its purchase by the company. Such a fact, along with others, has led to considerable resentment. But as American holders of big blocks of the shares are apparently content to await the development of the business in the East, the agitation is not receiving very strong support.

Some time ago the demand was for a pale plantation rubber, and experimentation was devoted to this end. As a result methods were found of insuring lightness in color, and the product met with a ready sale. But now one hears less of the color and more of the strength, so that manufacturers, as a whole, are readier in accepting a rubber though it should have been darkened in smoking. This has worked to the advantage of the plantation industry, for the use of alum as a bleaching agent, a most vicious practice, and one with disastrous effects on the rubber, was likely to increase. It should be noted that alum is also a coagulating agent for *Hevea* latex. Two, at least, of the proprietary coagulating powders contain alum; but this being a matter of common knowledge, estate managers cannot employ them without running the risk of censure, and boards of directors are not likely to allow any such departure from the ordinary acetic acid method. Yet alum, after all, is being used furtively, along with the acetic acid in order to improve the color. The excellent condition and quality of so much plantation rubber is testimony to the fact that very little of this sort of thing is carried on; but how widespread it really is one cannot learn.

There are very many rubber estates on the market in London, but none will buy. The public is satiated, and the commitments of insiders are already sufficient. By far the largest number of these estates are planted with additional cultures, such as tea, cacao, coffee and cocoanuts, and the Chinese ownership of some is marked by the presence of gambier or pepper. Ceylon is well represented, especially by mixed cultures; Malaya offers more estates with rubber alone; Java again is tendering mixed cultures largely; while Sumatra is marked by some young propositions; even Fiji is on the list. It is not surprising that many of these estates have been going begging for so long, seeing that multiplicity in kinds of crops, with no kind in very great quantity, leads to excessive cost of preparation. Naturally the cream of the estates changed hands in the boom time or before, but there are still available some respectable plantations. However, company promoters now have their attention directed toward cocoanuts as the stalking-horse.

I learn that a syndicate of Dutchmen, who sold their estates to English companies during the period of excitement two years ago, has been operating for some time in the purchase of the shares. In the particular cases these are at a heavy discount. The aim is ultimately to obtain control of the estates. It is notorious that investors in this country made some bad bargains with Dutchmen, especially when purchasing estates in Java; and shares of certain of the companies are almost or quite unsaleable, owing, on the one hand, to the low value of the estates, and on the other, to liability in respect of future calls on the shares. One hears now and then of large blocks of shares—even with 12s. 6d. paid out of £1—being handed over as a gift to others better able to meet the future liability.

Nothing further has been heard of a so-called synthetic rubber, emanating from Russia, that was some time ago brought to the notice of financial men in London. The sample shown was weak and tacky, though this might well be ascribed to retained solvent probably used to extract the rubber from, if one may say so, the partly altered crude material. An odor of carbon bisulphide was detected, but this very volatile solvent, had it been used alone, ought to have disappeared long before. Scattered through the rubber were particles with a conchoidal fracture and resembling resin. While the facts available allowed nothing more than speculation as to the origin of the material, there can be little doubt of its not being a synthetic rubber.

DESTRUCTION OF BALLOON FABRICS.

IN view of the suit of the North British Rubber Co. vs. E. T. Willows, reported in the June issue of THE INDIA RUBBER WORLD (page 441), interest attaches to the recent discussion by Dr. Fritz Frank, of Berlin, in the "Gummi-Zeitung," of the causes of the destruction of balloon covers through the formation of acids. In an earlier communication to an aviation journal, he had dealt with the subject from a more general standpoint, but in his present article he takes up the question from the point of view of the rubber manufacturer, dealing particularly with the formation of sulphuric acid in the fabric and the rubber covering, as well as the effects of the acid on both of them.

The formation of sulphuric acid or sulphuric acid salts in the process of vulcanizing rubber compounds is a known fact. With normal vulcanizing compounds the formation of sulphuric acid is not surprising, nor of necessity injurious to the covering, as there is a reaction between the metallic or earthy oxide and the sulphur, which produces indifferent sulphuric acid salts. It is different when such formation takes place at a later stage.

A factor of importance is the presence of copper in the rubber. The rubber tree may have absorbed it from the ground or it may have got into the latex during tapping. Although it can only be detected by the closest observation, its combination with the sulphur in the compound and the oxygen in the air produces an acid which quickly acts destructively upon the manufactured product. The latter falls apart like tinder, or becomes viscous. Decomposition has been noticed in regenerated rubber, which had been treated in copper vessels, the sulphur present forming sulphuric acid in quantity, which could not be neutralized by the oxidizing filling substances. The latter, being surrounded by rubber, are thus protected against decomposition beginning from the outside.

From the above considerations it is desirable to avoid the use on balloons of copper armatures or parts, with which there is the possibility of the covering being brought into contact. But if, as was recently authoritatively stated, certain Indian and Ceylon plantations use bronze rolls and copper sieves for the treatment of rubber, it is Dr. Frank's opinion that the greatest subsequent care will not prevent great damage to the manufactured product.

Iron may likewise give rise to brittleness in balloon cover-

ings. If there is a particle of iron in the rubber, which has been transformed into salt by the process of reaction, it gradually forms a small stain of weak reddish-brown tinge. The particles of salt which are formed are distributed in radiated form in the membrane of rubber, which becomes hard on the interior and often suddenly breaks. At the point of decomposition free sulphuric acid is always traceable. The presence of iron particles and oxides usually arises from accidental causes, having been traced chiefly to *Hevea* plantations unskillfully operated.

Another cause of the formation of sulphuric acid is the extensive surface which the balloon covering exposes to the aggressive influence of air in combination with light. In this connection, the compensatory action of the air towards the hydrogen in the balloon is of considerable importance. Whether in the action of air in combination with light, secondary sulphuric acid really leads to the destruction of the layer of rubber has not been exactly defined. On the other hand, certain indifferent substances, such as tar, asphalt, paraffin, etc., are used for the purpose of obviating the micro-porosity of rubber fabrics, and thus resisting the above-named influences, manifested by what is technically known as "sun-breaking."

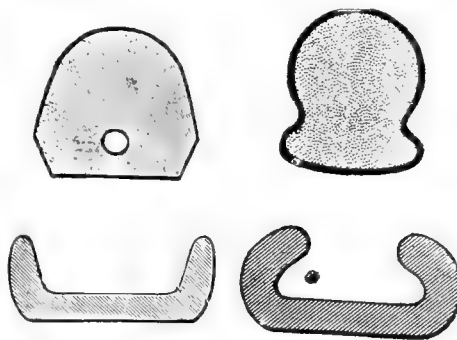
As to the theory that sulphuric acid is produced during the manufacture of the hydrogen gas, Dr. Frank rejects this assumption, adding that chemical science is in a position to manufacture gases which give rise to no complaint. He adds that it is far more likely that the presence of acid and its injurious effects arise from the previous treatment of the materials, in bleaching, dyeing, finishing, etc.; these processes leaving small residues of chlorides, sulphides, sulphates, etc., all of which exercise a certain amount of chemical action.

Generally speaking, good ventilation and cool temperature may delay the formation of acids or oxides in balloon fabrics when in storage.

TIRES FOR RICKSHAWS AND INVALID CARRIAGES.

The rickshaw has become quite an institution. There are over 40,000 of these convenient conveyances in use in Tokyo alone, and their use has spread so much outside the confines of Japan

that about 15,000 are exported from that country each year. The greater number of these rickshaws have solid rubber tires—90 per cent. of those in Tokyo are equipped in this way—and while some of these tires are made in Japan, two-thirds of them



are imported into that country from America and England. Here are some cuts showing two of the most popular English makes of solid tires for rickshaws and invalid carriages. One of these cuts shows a tire without wire that is held on by a clamp channel, the clamp channel showing underneath; while the other illustrates a tire held on by a central wire, the proper channel showing below.

Ernest Wallwork, an enterprising young man of 16, son of James Wallwork, proprietor of Thomas Rowley & Co., Manchester, England, has recently been visiting sundry points of interest in this country. He was particularly anxious to visit some of the representative American rubber mills, and found our manufacturers quite willing to let him inspect their plants.

RUBBER AND ITS SUBSTITUTES.

IN a review of the above subject, the "Zeitschrift für Angewandte Chemie" remarks that up to the present, there has only been discovered one really synthetic rubber—that obtained by the polymerization of isoprene. But, as it is added, the synthesis of isoprene itself presents great difficulties; a large number of patents having been taken out bearing upon this question.

One of the most interesting is that of the Farbenfabriken, Elberfeld, which company condenses formaldehyde with acetone, in the presence of weak alkalines. Starting from the carbinol thus produced, methylene-acetone can be obtained by separation of the water, and finally isoprene. A. Heinemann, on the other hand, is said to have arrived at the synthesis of isoprene by the reaction of ethylene, acetylene, and chloride of methyl. This invention is said to be in the hands of the Caoutchouc Syndicate.

Instead of starting from isoprene, other products can be used; particularly erythrene, amethyl-butadiene, and certain hydro-carburets. It seems to be particularly difficult to completely transform isoprene into rubber by polymerization, and to avoid the formation of terpenic products. Moreover, it is added, artificial rubber is always particularly difficult to vulcanize, the opinion being expressed that it is not upon the point of competing with natural rubber.

Besides, the production of the latter is constantly and largely increasing. In a few years, it is added, we can rely annually upon 76,000 tons wild rubber and 98,000 tons plantation rubber.

"Regeneration of rubber properly so-called has," it is remarked, "not yet been realized. In other words, it is impossible to eliminate the sulphur without destroying the molecule. At most the removal has been effected of the sulphur mechanically mixed, and of the filling substances employed. The 'regenerated' rubbers thus obtained are more and more used."

Reference is likewise made to "substitutes" produced by the vulcanization of fatty oils. Heating in conjunction with chloride of sulphur is said to yield white substitutes, while those of gray color are produced by sulphur at a higher temperature. These two products are composites obtained by a process of addition.

GERMAN MANUFACTURERS' VIEWS ON BUSINESS PROSPECTS.

A PART from the routine matters forming the order of the day, the recent congress of German Rubber Goods Manufacturers afforded an opportunity for the expression of their views on subjects of interest, from a manufacturing point of view.

In his opening presidential address, Kommerzienrat Louis Hoff dwelt on the fact that the position of the rubber industry is constantly becoming more difficult. Nevertheless, some factories have done well. The difficulty arises from the unsatisfactory prices at which goods are sold; the activity displayed, while necessitating overtime and night shifts, not being attended with profit. Improvement in the situation would only be attainable through co-operation and united action on the part of manufacturers. As Herr Hoff added:—

"Efforts hitherto made in this direction have failed. It would seem as if it were necessary for business to be still worse, for the question to be taken up anew, with a prospect of success."

Within the last ten years wages in the rubber industry had advanced by 33 1-3 to 40 per cent. Hence it was necessary to let the workers understand, that at present further advances were not to be looked for. Uniform conditions and rates of wages must be established; local associations of manufacturers

being in a better position than individual employers to carry out the desired end.

Prospects for the coming year he regarded as not being unfavorable; the crude rubber market being now more steady than before; the large importations of plantation rubber tending to prevent a recurrence of the surprises of recent years. Commenting upon the recent temporary upward movement in rubber, Herr Hoff urged that efforts should be made to bring the article again to its normal price of 4 shillings. In conclusion, he impressed on manufacturers the necessity of maintaining prices during the immediate future; letting their subsequent action be regulated by market conditions at the end of the year.

Herr H. Otto Traun, of Hamburg, dealt with the question of trading in rubber futures, calling attention to the fact that while the industry had at one time been opposed to trading in futures, that form of business had now been introduced in Antwerp and London. In the latter case this development had been encouraged by the prevailing speculation in rubber shares. Hamburg could not avoid following in the same path unless it was to take an inferior position as compared with other markets. Herr Hoff expressed his approval of the system of forward trading now in force in Hamburg, where a certain deposit has to be paid for the purpose of ensuring that the purchases are not merely speculative in character.

In the course of a general discussion of the question of selling prices, the opinion was expressed that minimum prices should be established, below which the makers will not sell. Expenses have risen enormously, in a proportion with which many firms cannot afford to keep pace. Such firms, it was urged, should content themselves with the trade of smaller customers, paying better prices than larger concerns.

A committee was appointed to investigate the question of introducing uniform terms of guarantee for rubber transmission belting. One of the most important results of the congress was the appointment of a committee for the classification of the industry into groups representing its principal branches. This step, it was considered, would facilitate the other measures proposed for the amelioration of existing conditions.

NEW USES FOR BALLOON FABRICS.

In view of the consumption of balloon fabrics being necessarily limited, German manufacturers in that line are said to be endeavoring to get them taken up, to replace other rubber products for various purposes. Efforts have been made to introduce these fabrics into the making-up industry, with the result that (according to the "Gummi-Zeitung") some of the houses in that line are now making mantles, hoods, etc., out of these materials. Balloon fabrics, it is further reported, are now being used as hospital sheetings.

Whether this new development is in the interest of the trade, is regarded as doubtful; the relatively lower prices of balloon fabrics being considered likely to affect the sale of rubber sheetings.

RUBBERED FABRICS FOR MAP FOUNDATIONS.

Air-charts mounted upon rubbered fabrics, are said to have been used for the first time at a recent German flying contest. Washable land maps and marine charts on a foundation of waxed cloth, or with a thin covering of celluloid, have been in use, but as the former easily crease and the latter do not roll up well, they have not proved durable.

In "rubbered air-charts," it is thought that a practicable substitute has been discovered. The air-charts hitherto used have had the disadvantage that the celluloid was easily soiled by dust and rain, which trouble is now obviated, while the pliability of the rubbered fabric on which the charts are mounted, facilitates their being rolled up and handled.

The German military authorities are said to be interested in these charts, which are in some cases made with thin layers of rubber on each side.

MACHINERY IN GERMAN RUBBER FACTORIES.

From a statistical return quoted in the "Gummi Zeitung" there was a marked increase of the average motive power of individual German rubber factories in 1907, compared with 1895, as shown by the following figures:

	Number of Factories.	Total Horsepower.	Average Horse- power per Factory.
1895.....	153	8,453	55
1907.....	252	23,347	93

In the United States, according to the statistics quoted in the May issue of THE INDIA RUBBER WORLD (page 374), the following has been the rate of development:

	Number of Factories.	Total Horsepower.	Average Horse- power per Factory.
1899.....	308	71,464	232
1904.....	285	87,956	309
1909.....	295	125,512	425

A comparison of the above figures shows the respective degree of the concentration and development of the rubber industries of the two countries.

USES OF RUBBER IN FACTORY LABORATORIES.

In a recent issue of the "Chemiker Zeitung," Herr F. Grossman deals with the most important rubber articles for factory laboratories. In the first place are tubes for water, acids, lyes, steam, alcohol, oils, gas, etc. Rubber being more or less pervious to gas, tubes with an internal coating of gelatine are preferred. There is a marked increase in such perviousness if the gas contains sulphuretted hydrogen. Rubber tubes can likewise be used as cooling—or heating—coils. Rubber tubes in separate pieces serve other laboratory purposes, such as the protection of glass tubes and burettes, as well as of chemical thermometers; for holding test-glasses, and likewise as a means of protecting electric wires against acids.

Besides tubes, rubber stoppers constitute an indispensable requisite. These stoppers are more or less conical in shape, being solid, or else with one or several cavities, or with other specialties of form. Rubber caps drawn over the openings of bottles, retorts, etc., serve as air-tight stoppers, and for protection against dust. Rubber receptacles are likewise used for holding gas with tube and shut-off faucet. Another serviceable laboratory adjunct is the rubber sponge, for taking up spilt liquids and cleaning laboratory tables.

In addition to soft rubber articles, those of hard rubber are by no means unimportant in laboratory practice; including hard rubber faucets, with one or more openings, replacing fragile glass faucets. Funnels, tubes, drying trays, pumps and other utensils of hard rubber are likewise seen. Besides these articles of general use, there are many special utensils for which rubber has been found suitable. Rubber mats are recommended as floor covering; in addition to rubber aprons, gloves, finger cots, as well as rubber garments, for the protection of workers against the effects of acids.

TECHNICAL USES OF RUBBER SEED OIL

In reply to an inquiry, the "Gummi-Zeitung" remarks that although the efforts hitherto made to employ the oil from rubber seeds in the manufacture of soap and varnish, or as a lubricant, have proved unsuccessful, it is advisable still to seek for an opportunity of its technical utilization. Such a course, it is added, is all the more necessary, as with the development of rubber cultivation, there is a constantly larger quantity of seeds becoming available.

The color of this oil is greenish-yellow, and the odor like that of olive oil; being slow-drying at an ordinary temperature, while

drying more quickly at a higher temperature. These and other properties of this oil, have retarded its adoption for technical purposes, but further trials are recommended.

RUBBER SUBSTITUTES FROM A FRENCH STANDPOINT.

One of the results of the rubber boom was to stimulate the quest for an artificial or natural product, which, when added to rubber, would not affect either its qualities or properties, while effecting a notable saving in the manufacturing cost.

These various products, known as "rubber substitutes," are classified by French chemists into three descriptions—elaterite, oil rubber and vulcanized oils.

Elaterite is a true fossil rubber as to the origin of which opinions differ. Some scientists claim that it is the fossil latex of a real plant; others, on the contrary, attributing to it a mineral formation, resembling that of naphtha, petroleum, or ozokerite.

Oil rubber is obtained by chemically treating certain siccative oils with suitable acids.

It has been claimed that in the rubber industry, the rubber substitutes made from vulcanized oils have met with principal favor. Their use became more general from the time when it was discovered that by adding chloride of sulphur to a vegetable oil at an ordinary temperature, the oil almost immediately solidified and would even become very hard. The use of chloride of sulphur for vulcanizing was the next stage, easily reached.

Certain French chemists state that rubber substitutes have no property which would allow them to be compared with, or substituted for rubber. It is claimed that chemically they do not combine with it, but can always be detected and even separated from the rubber which they accompany.

RUBBER CORSETS.

Reports from Paris speak of the growing popularity of rubber corsets, as affording a welcome relief from the stiff, inflexible fabric garment. The principal object in view is to avoid as far as possible the disadvantages of the fabric corset, and to impart a graceful outline to the figure, without impeding its freedom of movement.

FRANCE AS AN OUTLET FOR AUTOMOBILES AND ACCESSORIES.

The Paris correspondent of the "Gummi-Zeitung" deduces from recent statistics that France has about reached the limit of its productive capacity as regards automobiles, and is obliged to import them in augmented proportion, although French manufacturers are protected by a high import duty.

Comparative figures of French imports of automobiles show that imports from England, Germany and the United States had largely increased in 1911 as compared with 1910. The increase in the last named case was from the equivalent of \$152,000 to \$479,600.

These figures, it is remarked, would indicate that France presents better prospects than at any previous time as an outlet for automobiles, and likewise for automobile accessories, including, of course, rubber tires.

RUBBER AT THE VIENNA INTERNATIONAL AVIATION EXPOSITION.

Prominent among the features of the recent Vienna Aviation Exposition were the exhibits of the rubber industry, notably those of the United Harburg-Wien Rubber Factories, and of the Austrian-American Rubber Factory. These exhibits were much appreciated, as illustrating the importance of rubber manufacturing to aviation. Of special interest were the models of various dirigible balloons shown by the first-named concern, and samples of balloon fabrics, displayed by the latter. Rubber clothing and various other accessories of aviation, were exhibited by both concerns.

Comparative Japanese Import Statistics.

STATISTICS deriving their value from their comparative features, it has been impossible to draw from the official records conclusions of a reliable character as to the effects of the new Japanese tariff, until its operation could be shown for a more or less extended period.

Such an opportunity is afforded by a comparison of the figures for the first five months of the new tariff which went into effect July 17, 1911, with those for the corresponding periods of 1909 and 1910. While not forming an official table, it has been found possible to construct that shown below by a compilation of the separate figures for the periods covered.

The broad fact deducible from this comparison is—that the value of Japanese imports of rubber manufactures for the five months, August to December, represented for the last three years—1909, \$791,727; 1910, \$1,222,598; 1911, \$556,939. Assuming that the figures of 1910 had been unduly swelled by the anticipated advance in duties, 1911 shows a falling off to the extent of one-third as compared with 1909:

MANUFACTURED RUBBER IMPORTS FROM AUGUST TO DECEMBER 31.

	1909.	1910.	1911.
Plates and sheets (soft and hard)	\$22,848	\$42,054	\$22,069
Tubes and rods (soft and hard) ..	10,674	19,536	11,883
Other classes	19,480	22,681	43,385
Total group B.....	\$53,002	\$84,271	\$77,337
Engine packings	\$54,321	\$72,643	\$52,102
Hose and machine beltings.....	8,962	12,045	14,611
Total group C.....	\$63,283	\$84,688	\$66,713
Submarine and underground cables	\$51,977	\$439,532	\$14,669
All other insulated wire.....	443,769	435,747	310,323
Total group D.....	\$495,746	\$875,279	\$324,992
Rubber boots	\$5,600	\$5,595	\$17,122
Rubber shoes	7,664	3,992	10,679
Elastic boot webbings.....	19,938	24,302	12,091
Waterproof cloth	72,672	69,411	7,235
Elastic bands and cords.....	9,574	5,786	11,622
Air pillows	7,184	8,656	1,222
Quilts and cushions.....	7,490	6,407	3,838
Sundry manufactures of india-rubber and gutta percha.....	49,574	54,211	24,088
Total group E.....	\$179,696	\$178,360	\$87,897

SUMMARY.

	1909.	1910.	1911.
August 1 to December 31.			
Group B.....	\$53,002	\$84,271	\$77,337
" C.....	63,283	84,688	66,713
" D.....	495,746	875,279	324,992
" E.....	179,696	178,360	87,897
August 1 to December 31.....	791,727	1,222,598	556,939
January 1 to July 31.....	754,457	1,095,829	2,382,131

Totals for years.....\$1,546,184 \$2,318,427 \$2,939,070

The effect of the new tariff was thus to reduce the imports of rubber manufactures for the last five months of 1911 by about one-third as compared with 1909, and by more than half as against 1910.

When the returns up to July 31, 1912, are available, it will be

possible to make a comparison between full years of the new and old tariffs.

CRUDE RUBBER.

Japanese manufacturers have been importing more crude rubber, which more or less offsets the reduced imports of manufactures as shown by the following figures:

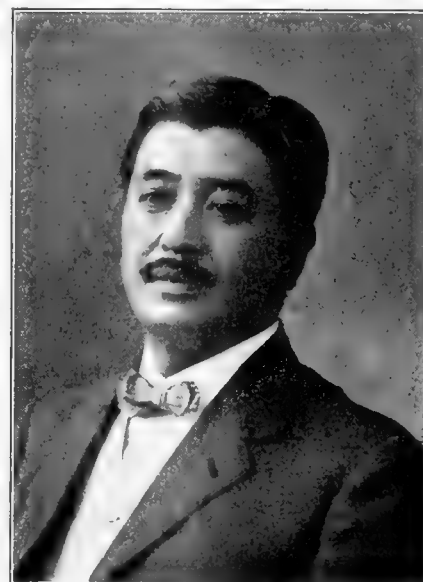
(Group A)	1909.	1910.	1911.
January 1 to July 31.....pounds.	794,876	817,901	1,158,463
August 1 to December 31.....	526,587	763,017	896,401

Totals for years..... 1,321,463 1,580,918 2,054,864

Crude rubber, being free under both tariffs, its movements are chiefly of interest as illustrating the direct effects of the new tariff upon imports of manufactures, by the consequent development of Japanese production. The imports of rubber, which for the 19 months ending July 31, 1910, had amounted to 2,139,364 pounds (or an average of about 112,600 pounds per month), represented for the ensuing 17 months to December 31, 1911, a quantity of 2,817,881 pounds, or an average of 165,760 pounds per month. Thus, in anticipation of the reduction of imports shown after the new tariff had gone into effect, the Japanese manufacturers had been importing free crude rubber on a scale of increase approximating 50 per cent. Figures of 1912 show for February, 58,152 pounds, and for March, 80,183 pounds, thus representing a reduced importation of crude rubber this year.

TOYO RUBBER COMPANY, LIMITED.

This company was established in 1900 with a capital of \$150,000, which was reduced by 1908 to \$75,000. Its motive power is furnished by one engine (100 h. p.), two boilers (each 100 h. p.), and a dynamo. The working staff numbers 92 hands of both sexes. That further extension is contemplated is shown by the



Y. YOSHIDA.

fact that while the area built on is only six-tenths of an acre, the property covers 2½ acres. The products of this company for 1911 represented \$143,000, including hose and tubes, insulated wire, sheets, belting, tires (cycle and jinrikisha), paper press rolls, etc.

N. Nagotomi is president, while Yutaro Yoshida is superintendent and manager. The experts are Mr. Kitoyama and B. Fujii, both graduates of the Tokyo Imperial University.

Some Rubber Planting Notes.

MALAYALAM RUBBER AND PRODUCE COMPANY (SOUTHERN INDIA).

THIS company, with 5,700 acres in rubber alone, and 1,336 acres interplanted with tea, produced 36,101 pounds in 1911, as against 12,555 pounds in 1910. The crop was virtually secured from 327 acres, the yield per acre being thus about 110 pounds. The f. o. b. cost was 1s. 3½d. per pound, and the net average price realized 4s. 8½d. The estimate for 1912 is 117,500 pounds, the increased figure being partly due to the arrival of several plantations at a productive stage. The five months' drought seriously affected the 1911 result.

SCOTTISH MALAY RUBBER COMPANY, LIMITED.

The crop for 1911 amounted to 101,752 pounds from a total of 87,000 trees, the estimate for 1912 being 200,000 pounds from 100,000 trees, on 1,000 acres. Some of the trees have only recently become productive. The new iron factory has been erected and is in working order. Suction gas motive power has been supplied, as well as a complete installation of machinery, including a hot air system for drying the rubber.

BIKAM RUBBER ESTATE, LTD. (FEDERATED MALAY STATES).

The crop for 1911 amounted to 94,214 pounds, against an estimate of 100,000 pounds. The erection of the new factory was completed and the necessary machinery installed. A great improvement in quality of the rubber turned out has taken place, since the new factory started, about the end of last year. The dividend paid for 1911 was 12½ per cent.

RIVERSIDE (SELANGOR) RUBBER COMPANY, LTD.

Additional planted acreage reported by cable brings the present total up to 1,585 acres. Last year's crop was 64,610 pounds, against an estimate of 61,000 pounds. For the first four months of 1912 the quantity was 41,913 pounds, the estimate for the current year being 150,000 pounds or more.

TANJONG OLOK RUBBER PLANTATION, LIMITED. (FEDERATED MALAY STATES).

The area under cultivation, by the latest report, was 950 acres, of which 120 are newly planted. The yield for 1911 was 13,706¾ pounds, the limited character of the result being due to the combined effects of drought and wintering. The estimated output of dry rubber for 1912 is 55,000 pounds.

PATALING SCORES AGAIN.

The production of the Pataling Rubber Estates, which had been 323,065 pounds for the year 1910, and 333,044 pounds for 1911, reached for the first five months of 1912, the figure of 173,578; this result showing an increase at the rate of about 30 per cent. as compared with 1911. This company bids fair to excel for this year its record dividend of 250 per cent. for 1911, having announced a first interim dividend of 50 per cent.

RUBBER EXPORTS FROM THE STRAITS SETTLEMENTS.

A cablegram received by the Malay States Information Agency from the Colonial Secretary, Singapore, gives the export of rubber from Straits Settlements (as distinguished from Federated Malay States) ports during the month of April as 867,200 pounds, as compared with 956,933 pounds in March.

RUBBER EXPOSITION IN JAVA.

An International Rubber Exposition and Congress is announced to take place in April, 1914, at Batavia, Java. The project is being elaborated by the General Agricultural Syndicate of Java, in co-operation with the Dutch-Indian Government and under the honorary protectorate of the Governor-General. In view of the important position occupied by rubber in the commercial economy of the Netherland East Indies, much interest is

being there manifested in the project, in which the participation of Europe and America is anticipated.

MALAYSIA AT THE NEW YORK EXPOSITION.

A recent consular report states that the Federated Malay States have decided to be represented officially at the International Rubber Exposition to be held at New York, September 23 to October 3, 1912, and arrangements have been made to secure suitable space for exhibits. The section will be under the charge of Leonard Wray, I. S. O., late director of museums, Federated Malay States. No export duty will be charged on approved exhibits. The whole cost of the section will be guaranteed by the governments of the Federated Malay States and Straits Settlements, but it is hoped that contributions will also be received from associations.

According to Consular Report No. 8907 there is an American company owning two large rubber plantations in the Straits Settlements which desires to get in touch with crude rubber buyers in the United States.

EDUCATION ON MALAYAN RUBBER ESTATES.

The government of the Federated Malay States is bestirring itself in regard to the welfare of the children who accompany Tamil immigrants to Malaya. Believing that desirable immigrants are more likely to be attracted to the country if provision is made for the education of the children, the government suggests that the employers of Tamil labor should provide and maintain schools, the government undertaking the necessary supervision and rendering such assistance in the way of contributions to the cost of the schools as may be considered fair and reasonable. The matter was submitted to a recent meeting of the Planters' Association of Malaya at Kuala Lumpur, and Mr. Cruickshank, one of the planters, explained the system of night schools in operation in Ceylon. The chairman, Mr. E. B. Skinner, who is the planters' representative in the Federal Council, admitted the usefulness of having the children on estates taught the three R's in the vernacular. The association favored night schools, as already existing on several estates, and resolved that reading, writing and arithmetic be taught in Tamil, and that the estates should provide the teacher and building. This decision has been communicated to the F. M. S. Government.

LABOR IN THE MALAY PENINSULA.

This important question is dealt with as follows in the 1911 report of the Pahang Rubber Company, Limited:

"The biggest problem in Pahang is that of labor. There is no scarcity of labor in the Malay Peninsula, but it is merely a difficulty in collecting it. Owing to the rapid development of the rubber industry the demand for labor has been very great, and it is cheaper for some plantation managers to take on coolies who are willing to desert their estates that have paid their passages and given them advances that have not been repaid. It pays a manager to give deserters a higher wage than the standard because the costs of importation are saved. There is a strong feeling against these methods, however, and eventually conditions will have to be adjusted. The results of some of these undesirable methods is shown by the fact that one well-known estate had to recruit 1,200 coolies last year in order to increase their labor force by 200.

LONDON AND BRAZILIAN BANK INCREASES CAPITAL.

Owing to the increase of its business, the London and Brazilian Bank proposes to increase its capital by the equivalent of \$2,500,000, in 25,000 shares of £20 (\$100) each. Its headquarters are in London, and it has branches at Rio de Janeiro, Pará and Manáos, as well as other Brazilian points.

LEADING PLANTATION RETURNS FOR FIRST QUARTERS 1911 AND 1912.

	Acreage planted.	Output First Quarter 1911. pounds.	Output First Quarter 1912. pounds.
Bandarapola Ceylon Company.....C.	4,159	158,200	192,430
Batu Caves Rubber Company.....M.	2,523	13,510	26,340
Bukit Lintang Rubber Estates.....M.	1,400	52,220	75,550
Consolidated Malay Rubber Estates.....M.	791	48,250	96,310
Damansara (Selangor) Rubber Company.....M.	4,775	73,430	96,360
Eastern Produce and Estates Company.....C.	2,051	87,370	126,290
Edinburgh Rubber Estate (Selangor).....M.	1,253	25,580	40,360
Golden Hope Rubber Estates.....M.	1,150	26,350	38,400
Harpندن (Selangor) Rubber Company.....M.	850	17,540	31,110
Highlands & Lowlands Para Rubber Company.....M.	1,134	54,020	69,310
Kapar Para Rubber Estates Company.....M.	8,137	131,830	176,670
Klanang Produce Company.....M.	3,221	54,360	111,850
Kuala Selangor Rubber Company.....M.	1,428	31,230	42,990
Lanadron Rubber Estates.....M.	1,470	19,180	65,860
Lang Kat Sumatic Rubber Company.....S.	1,538	42,460	58,740
Ledbury Rubber Estates.....M.	4,523	72,990	124,240
Linggi Plantations.....M.	1,752	18,190	45,340
London Asiatic Rubber & Produce Company.....M.	4,859	234,000	284,500
Panamatte Tea & Rubber Estates.....C.	6,747	61,670	123,480
Pataling Rubber Estates Syndicate.....M.	1,467	71,100	98,390
P. P. K. (Ceylon) Rubber Estates.....C.	1,320	21,870	51,740
Riverside (Selangor) Rubber Company.....M.	1,019	11,640	15,810
Sapumalkande Rubber Company.....C.	1,408	8,810	33,630
Scottish Malay Rubber Co.....M.	810	11,020	21,640
Seafield Rubber Co.....M.	2,214	61,040	90,130
Selangor Rubber Co.....M.	1,403	14,400	26,090
St. George Rubber Estates.....C.	1,742	111,240	134,180
Sungei Kapar Rubber Company.....M.	1,529	15,200	38,370
Sungei Way (Selangor) Rubber Company.....M.	2,031	70,800	105,100
	1,184	29,290	48,370
M=Malaya. C=Ceylon. S=Sumatra.	69,868 acres.	1,648,790 pounds.	2,489,580 pounds.

MOZAMBIQUE RUBBER CULTIVATION.

According to the report of Director of Agriculture Lyne, of Lourenço Marquez, in addition to other zones, there is in the Quilimane district of Portuguese East Africa, a distinct rubber zone, starting 50 miles from the coast and extending 75 miles towards the interior. The undulating surface is wooded, and watered by a number of rivers.

Three *Manihot* plantations, estimated to contain in all at least a million trees, are situated at different points.

On one plantation visited by the director there were 400,000 to 500,000 trees of which 90,000 were at a productive stage, being three and a half to four years old. Tappings are said to have produced a satisfactory yield, special reference being, moreover, made in the report to the healthy condition of the trees and the abundant flow of latex. The opinion is expressed that the prospects of rubber cultivation in the Quilimane district are decidedly favorable.

MEXICAN EXCURSION TO THE UNITED STATES.

Consul A. J. Lespinasse, of Frontera, Mexico, announces that an excursion has been planned under the auspices of the Chamber of Agriculture of Tabasco, to be composed of the leading business men and planters of that State, for the purpose of visiting the principal agricultural, commercial and industrial centers of the southern and southwestern sections of the United States. Efforts will be made to secure all possible data, relating to the most modern business and agricultural methods now in use.

Frank Evans, Esq., Agricultural Experiment Station, Department of Agriculture, Trinidad, has just been appointed superintendent of Agriculture in the Agricultural Department of Southern Nigeria and left Trinidad for England on June 11. He expects to leave London for Africa early in August.

SOME NEWS NOTES FROM MANAOS.

By a Resident Correspondent.

THE Commercial Association of this place is at present interested in plans for the Amazonas exhibit at the Rubber Exposition to be held in New York late in September. The president of Brazil has requested Governor Bittencourt to see that this State (Amazonas) is adequately represented at this exhibition. In compliance with this request the governor has asked the Commercial Association to take charge of the matter and has agreed to allow 30 tons of rubber to be shipped free of duty, thus guaranteeing the payment of necessary expenses in New York. Mr. Arthur Stedman, of the New York Commercial Co., has been suggested as representative of the association in New York; also Mr. J. Levy, of B. Levy & Co., of Manáos.

The fiscal agent of Matto Grosso in this place has telegraphed his government for permission to ship 15 tons of rubber free of duty also, for the Matto Grosso exhibit.

The Commercial Association has recently opened an exchange on the ground floor of the fine new building to which it has lately moved. Every afternoon the leading buyers, sellers and brokers will meet there between three and five o'clock to discuss any questions of general interest which may arise.

The Madeira Mamoré Railway has just been completed. The official inauguration of the line will take place in July. R. H. May, head of the contractors who have built the railway, returned from Europe this week. This railway will undoubtedly give a great impetus to the production of rubber and caucho in Matto Grosso and Bolivia.

The crop of Brazil nuts has been unusually large this year. It is estimated that it will reach 14,000 tons by the end of the season. The prices paid have been good in spite of large receipts.

W. Scholz, who left Manáos last autumn, has joined Ahlers & Co., of Manáos, and is in charge of their rubber buying.

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

WHILE it is still premature to say positively that the drought is at an end, there has been a welcome break in the weather which has been very acceptable. At the time of writing the rainfall returns for May are not available, but they will assuredly exceed those for April, which was a wet month by comparison with the other months of 1912. Nevertheless, the smallest sign of a break in the weather has been sufficient to encourage the Balata companies, and expeditions are now being got ready to send into the interior without delay, in order to make as much of the season as possible. The majority of the bleeders also are not sorry that their enforced idleness has come to an end. Some of the companies here have been financing the bleeders, and some have not, but the desire to resume work is fairly unanimous. The season, however, is not being entered upon without the inevitable disputes, and many companies have had trouble with their men, who have been described by one gentleman interested in the industry as "bullying and mutinous."

THE AMSTERDAM BALATA COMPANY HAS HAD TROUBLE WITH ITS LABORERS.

A contingent of 100 was contracted for, for the King William Falls district, Essequibo River, in January last, but for obvious reasons the company could not send the men away. It would not have been to the interest of the men to go, because no latex can be obtained in dry weather. Consequently a fresh contract was entered into and still the weather was unfavorable. Eventually it was decided to make a start, but the men wanted fresh advances and larger advances, store orders, "doctor shop" orders, and what not. The company seems to be regarded as a milch cow by the laborer. This labor problem is going to do the industry a lot of harm unless it is speedily solved.

THE BALATA COMMITTEE—EVIDENCE OF THE COMMISSION OF LAND OWNERS.

The Balata committee is likely to offer the solution soon. The evidence of the Commissioner of Lands and Mines (Mr. Frank Fowler) has been taken, a memorandum by Mr. R. O. H. Spence (assistant commissioner of lands and mines) has been published, and Mr. A. F. White, manager of the Consolidated Rubber and Balata Estates, has appeared before the committee. This is to be all the evidence that is to be taken and the committee is now considering its report. In his memorandum Mr. Spence stated, in reply to specific inquiries, that there are six land officers in the bush having duties with regard to Balata concessions or Balata bleeding. They are stationed at Mora-whanna, North West District; Marlborough, Pomeroon District; Look Out, Essequibo River District; Dadanawa, Rupununi District; Christianburg, Demerara River District; Springlands, Corentyne District. There are five forest rangers stationed in the North West District, Lower Essequibo River District, Demerara River District, Canje Creek, and Berbice River District. These forest rangers, says Mr. Spence, visit and inspect Balata tracts as part of their official duties. There are also six gold officers in the interior. Mr. Spence says he thinks that, provided the necessary legislation is passed, and the staff increased, these officers might perform functions in connection with the Balata industry. He considers the increased staff required would be—five fourth-class officers, boat crews for four; rations, personal allowances, houses, tent-boats, involving a total cost for the first year of \$21,760, and an ultimate annual cost of \$17,070. This expense, he thinks, should be borne by the industry, as it would be incurred primarily for the benefit of the owners. He suggests that the registration of laborers should be undertaken by the department, as was done up to January 1, 1910, when under the Employes' and Laborers' Ordinance, No. 26 of 1909, it was transferred to the Institute of Mines and Forests. He suggests a fee of one shilling for each

registration certificate, and that they should be issued for twelve months, the revenue derived meeting the expense incurred. He does not view favorably the suggestion that the department should contract the laborers, or prosecute them for breach, "as matters can be more satisfactorily carried out by the Institute of Mines and Forests, provided the necessary legislation is enacted to define the duties and powers of the Institute, and to make provisions for the efficient carrying out of these duties, both on behalf of the laborers as well as the employers."

Mr. Fowler, in his evidence, said he agreed with Mr. Spence. Registration by the department would have a better effect on the men, absconding not being so rampant when the Government did the work. The men did not regard the Institute as in any way under Government control, and he opposed the transfer unsuccessfully when it was made. The appointment of a Government chairman by the Institute would not be sufficient. The Government should take over the Institute's duties or leave it alone, i. e., unless they confine their interference to registration alone. He suggested the formation of a Labor Bureau as part of his department. Registration would not entail increased expenditure, but if contracting as well were undertaken it would. He believed it would be a good thing to have the registration and contracting done by the same body and at one time. He agreed with the appointment of new wardens, and thought the expense might be reduced a little. He saw no difficulty in ear-marking revenue derived from the industry for the benefit of the industry.

THE INSTITUTE OF MINES AND FORESTS—ITS RELATIONS WITH THE NEW COMPANIES.

The suggestion that the work of registration, or contracting, or both, should be withdrawn from the Institute and taken over by the Government has provoked some criticism of the former body, in response to which Mr. James Winter, the secretary, has published a draft agreement, which he drew up for the benefit of the industry. He said that this was signed by all the old employers of Balata bleeders, including Mr. A. P. Bugle, for M. Bugle & Co., and as agents for Messrs. Thom & Cameron; Garnett & Co.; Joseph M. Ho-á-Hing; Evan Wong; H. L. Rongieiron, by his attorney C. A. Cunha; Ernest Farnum; Veerasawmy; Clement P. Gaskin; W. A. Douglas, for S. Davison & Company, Limited; and others, but that the new companies upset the labor market and the agreement became a dead letter. The agreement was as follows: "We, the undersigned employers of Balata bleeders hereby agree to the following eight resolutions passed unanimously at a meeting of a committee on the Balata industry and undertake to adhere to the same, and assist in every way to have them carried out: Resolution 1—That the cash advances to bleeders shall not exceed \$5 each for places below the falls, and not exceed \$10 each above the falls. Resolution 2—That the advance in medicine and goods in town shall not exceed \$6 per man for places below the falls, and not exceed \$12 per man for places above the falls. Resolution 3—That the price of provisions supplied on grants be inserted in contract, and in cases where provisions are supplied at place of departure, the price shall be agreed on and also be inserted in contract. Resolution 4—That all employes of grant holders be contracted through the Institute. Resolution 5—That all employers shall furnish the Institute with reports of any employe who is inefficient or misconducts himself. Resolution 6—That notice of men absconding shall be supplied promptly by employers to the Institute, and the Institute shall furnish a quarterly list of such abscondings to each employer. Resolution 7—That no employer shall employ any absconder, but in the event of doing so, shall, on discovery of the fact, at once give notice to the Institute and to the employer, from whose service the absconder has deserted, and shall accept the arbitration of the Institute in the adjustment of claim between him and the first employer. Resolution

8 That the terms herein agreed to, be embodied in a form of agreement and be signed by all employers undertaking to conform strictly to the terms and enforce the conditions laid down.

On behalf of the new companies Mr. Henry Daley, secretary of B. G. Balata Association, and manager of the Essequibo Rubber and Tobacco Estates, Limited, made the following reply: This agreement was shown to him during the sittings of the Balata Committee. This was the first he had seen of it, and he would be much surprised if any of the new companies' representatives had even heard of it before. Mr. Daley stated emphatically that from the beginning the Balata Association wished to work hand in hand with the Institute, and did all in its power towards this end. He further remarked: "Whatever the policy of the new Balata companies has been, they have all along tried to work with the Institute. This is clearly shown by the evidence of the Balata Committee meetings, Mr. Joseph A. King, who represented the companies in the Balata Association, leaving all questions directly affecting the working of the Institute severely alone." Asked whether he was in favor of the Institute remaining in existence, Mr. Daley said: "If the Institute could be granted fuller powers, and with certain alterations in its regulations, it would be a pity to make any change. The Institute has records and experience that will take another or new department considerable time to acquire, and from some of the last witnesses of the Balata Commission a change is likely to cost the Balata companies considerable money. For the benefits to be derived, I certainly don't think it is worth it. Let the different industries (particularly the Balata interests) be properly represented on the council of the Institute and there will be no further need of the Balata Association."

FURTHER BRITISH GUIANA NOTES.

AN UNKNOWN HOLIDAY GROUND.

ON June 5 Miss Edith Browne, the authoress (whose name is familiar to the readers of THE INDIA RUBBER WORLD), who had arrived in the colony some weeks before, delivered an interesting lecture on the above subject in the rooms of the Royal Agricultural and Commercial Society at Georgetown. During her visits, at different times, she had evidently grasped the situation of local matters, as her lecture was replete with comments and suggestions, in line with her previous work in England in writing up British Guiana.

Touching the work of the Permanent Exhibitions Committee, which it had been stated was borne practically by Professor Harrison and Mr. Stockdale, and for the furtherance of which co-operation was solicited, she observed that from what she had seen of the colony's representation at the Rubber Exhibition in London she did not think these gentlemen needed any help. Passing on to the subject of her discourse, Miss Browne said there were several people in the audience who knew a great deal more about the colony than she did, but at the same time there were in Georgetown a very great number who did not know nearly as much about the colony as she did, much to their shame. They had, however, to do something to make the fact of the colony being an ideal holiday ground known. Other countries that wanted to come to the fore as playing fields had spent an enormous amount of money in advertising.

Miss Browne likewise urged the development of British Guiana. In the development of the colony, as far as she could judge, there were three problems. Those bones of contention were capital, labor and transport.

In supporting a vote of thanks to Miss Browne, Mr. Justice Earnshaw said that if the colony could be called by one name, instead of British Guiana and Demerara, it would be of considerable use and a committee should be formed with a view to proclaiming the virtues of the colony as a health and holiday resort and settling on the name by which it should be known abroad.

An attempt was being made through the energy of Sprotons,

Limited, with the assistance of Miss Browne and Mr. Colcutt to erect a hotel. Mr. Colcutt, a London architect, is now visiting the colony for the purpose of investigating the situation and prospects.

THE BALATA SITUATION.

According to the most recent statistics available, British Guiana exports of balata this year, from January 1 to June 6, had been only 25,557 pounds, as compared with 136,006 pounds during the corresponding period of 1911. The United Kingdom took about 55 per cent. of the quantity and the United States about 45 per cent.

The advent of the rains has been a blessing in many directions. It has had the effect of causing a brightening generally in trade in Georgetown, and the stores after the long spell of trade depression, caused by the drought, are busier through the industrial activity that the rains have brought. Especially is this the case with the balata industry, the activity of which is perhaps greatest, seeing that the drought had caused more of a dead stop in these operations than perhaps in any other direction. The great exodus to the balata bush which took place during the last fortnight of May has meant good business for traders that cater especially for the balata bleeder and his multifarious wants.

The first piece of balata of the season was brought to town on the 16th of May. It was for the Consolidated Rubber & Balata Estates, Ltd., and came from grants on the Demerara River. The balata was of a beautiful amber color and of splendid quality.

Mr. Coupain (a collector for the Balata Company Surinam), has just returned from the Gonini and Tappanahony rivers. Mr. Coupain is quite sanguine that although the dividends this year will be nothing near as high as what they were last year, still, he adds, the forecast of the industry is sufficiently reassuring. He says that all the trees are now in fit condition for operations, and that it is only a matter of a little more time spent on the grants to make things square. This is rather encouraging.

BRITISH GUIANA AND THE NEW YORK EXPOSITION.

Efforts have been made to induce the Permanent Exhibitions Committee to reconsider its decision for the colony not to take part in the New York Exhibition. Strong resolutions on the subject have been adopted by the Georgetown Chamber of Commerce and by the Royal Agricultural and Commercial Society. In communicating the resolution to the Exhibitions Committee, the Secretary of the Chamber of Commerce added: "Opportunities for advertising the colony and its products are so few that the Council think it would be missing one of the greatest, if this colony made no show at all on the tables of the New York Exhibition."

TRINIDAD NOTES.

Consul Franklin D. Hale, of Port of Spain, Trinidad, advises that he expects to arrive in New York on July 17, on a leave of absence for 30 days. He will be in New York for two days, and may be addressed by business men at the Grand Union Hotel; thence proceeding to Washington for two days. During the remainder of his leave, his address will be Lunenburg, Vermont.

In anticipation of his visit he has written an official report on "How to Increase American Trade with Trinidad," which appears in No. 140 of the Daily Consular and Trade Reports. He remarks that while many of the larger mercantile firms doing business with America make their purchases through New York commission houses, he feels assured that commercial travelers personally representing goods in the island, would effect much larger sales in numerous lines.

Railway extension is making satisfactory progress; the iron-work for the bridges on the Siparia and Rio Clara lines having been contracted for in England. The local government has ordered from England a new 14½-knot coasting steamer for use in connection with the railway at San Fernando.

"HEVEA" AND "CASTILLOA" IN HONDURAS.

PLANTATION BOCA VIEJO, Honduras, has recently taken on a new lease of life and is going ahead rapidly in planting *Hevea* and *Castilloa*. The operating company was organized in 1908 and the following year planted some 40 acres which the



MANAGER'S AND ASSISTANT MANAGER'S HOUSE ON THE BOCA VIEJO AND A VIEW OF THE LARGER PLANTED "CASTILLOA."

native *capitans* allowed to run out. A year later another effort was made and about 6,000 stumps taken from the nursery and set out. All this was done privately by three gentlemen, residents of the State of Washington—C. F. Armond, Dr. George A. Gray and E. Wilson Farr.

Quite recently the company has secured a grant from the government of Honduras for 2,100 acres of land, which they are planting in *Hevea* and *Castilloa*, with windbreaks of coconut palms. The combination of *Hevea* and *Castilloa* would seem to be one very practical solution for planting throughout Central America, and those who keep in touch with plantations in the section named will observe that more and more *Hevea* is being taken on with excellent results.



"HEVEA" IN THE NURSERY BEDS—9 MONTHS OLD BOCA VIEJO PLANTATION.

It is said to be shown by the experience of Americans who have acquired plantations in Honduras that rubber trees in that country begin to yield in four years.

CENTRAL AMERICAN RUBBER CO.

The plantation of the Central American Rubber Co., in Honduras, is reported to have 120,000 young trees ready for transplanting next spring. The plantation includes a number of trees old enough to be tapped. The production from these trees amounted to 575 pounds last year, which sold at \$1.15 per pound.



"CASTILLOA" STUMPS IN PARTIAL SHADE, BOCA VIEJO PLANTATION.

The stockholders of this company are chiefly residents of Spokane and Tacoma.

* * *

The course of rubber culture in Honduras is illustrated by the United States imports of crude rubber from that country.

	Pounds.	Value.
1906.....	93,126	\$55,769
1907.....	104,334	76,444
1908.....	102,010	65,865
1909.....	76,133	39,985
1910.....	148,813	117,808
1911.....	88,748	80,660



"HEVEA" ON THE BOCA VIEJO PLANTATION—14 MONTHS OLD.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

The Editor's Book Table.

RUBBER AND GUTTA PERCHA. REPORT NO. 82 FROM SCIENTIFIC and Technical Department, Imperial Institute, London, 1912. Part IV—Rubber and Gutta Percha. [Paper. 8vo. 448 pages.]

THE value of a comparison depending upon its general standard, special interest attaches to the recently published selected reports of the Scientific and Technical Department of the Imperial Institute, edited by the director, Mr. Wyndham R. Dunstan. Based on the principle that rubbers of all descriptions have practically the same components in varying proportions, a series of analyses defines the composition of a number of samples analyzed by Mr. Harold Brown, Dr. S. S. Pickles, and other members of the staff.

Uniformity of result has been insured by the form of the analyses, which show the composition under two heads, applied to "Rubber as received," and "Dry rubber." The elimination of moisture in the latter case naturally increases the proportion of caoutchouc, while also slightly altering that of the other constituents. The general form of analysis may be illustrated by the following example:

CEARA RUBBER FROM KIBOS DISTRICT, EAST AFRICA PROTECTORATE (p. 291).

	Rubber as received Per Cent.	Composition of dry rubber. Per Cent.
Moisture	12.4	...
Caoutchouc	58.9	67.2
Resin	10.5	12.0
Proteid	12.1	13.8
Insoluble matter.....	6.1	7.0
Ash	2.4	2.8

This form of analysis is applied with varying results to the following rubbers:

Pará rubber (<i>Hevea brasiliensis</i>).....	45 analyses.
Sapium rubber (<i>Sapium Jenmani</i>).....	3 "
Ceara rubber (<i>Manihot Glaziovii</i>).....	19 "
Castillo Rubber (<i>Castilloa elastica</i>).....	18 "
Funtumia rubber (<i>Funtumia elastica</i>).....	36 "
Ficus rubber (4 varieties).....	25 "
Mascarenhasia rubber (<i>Mascarenhasia elastica</i>)..	4 "
Miscellaneous rubbers	13 "
Vine rubbers (African, Asiatic and West Indian).	60 "
Gutta Percha and Balata	25 "

Total 248 analyses.

While scientifically accurate results are defined by the analytical tables, their presentation is so clear that they are equally available to the non-technical reader.

Regarding each species of rubber, a concise summary of its botanical and geographical features precedes the tables of analytical results, while an appendix deals with the utilization of the seeds of the Pará rubber tree.

Within the compass of this brief notice it is impossible to do more than call attention to the salient features of this valuable and interesting compilation.

Extending as they do over a period of seven or eight years, these tables have, in the completeness of their form, a value which they would not have had in the fragmentary shape of separate publication. Mr. Dunstan and his colleagues are to be distinctly congratulated on this result of their labors in the cause of technical research.

THE CEYLON HANDBOOK AND DIRECTORY AND COMPENDIUM of Useful Information. Compiled, prepared and edited under direction of J. Ferguson, C. M. G., Colombo. A. M. & J. Ferguson, 1912. [Cloth. Pp. LXXI + 1668.]

Distinctly in advance of its predecessors, the "Ceylon Handbook and Directory," while a little later than usual in its appearance (chiefly owing to the alteration in the date of the government financial year), affords increased information in the form of an extra hundred pages of text. While dealing fully with the other branches of the Ceylon planting industry, it gives rubber its appropriate position of prominence. From the statistical table forming a special feature of the work, it is seen that rubber alone represents 161,792 acres, as compared with 349,135 acres in tea alone. While of more recent development than tea, rubber is thus catching up with the latter; more particularly when it is considered that further areas are planted in rubber with tea, of 77,093 acres; and in rubber with cacao, of 19,493 acres. Thus there is a gross total of 258,378 acres in which rubber is represented, which, after allowance being made for other interplanted crops, is estimated to equal about 215,000 acres in rubber. There is in the work a remarkable abundance of local information, so that any one in any way connected with Ceylon and its various interests will find in it much valuable and distinctly up-to-date information, evidently gathered and compiled by painstaking efforts. Messrs. Maclaren & Sons, Ltd., 37-38 Shoe Lane, London, are in a position to supply copies of the Handbook.

RUBBER PRODUCING COMPANIES (CAPITALIZED IN STERLING).

Compiled by Gow, Wilson & Stanton, London. Published by "The Financial Times," London, 1912. [8vo. 608 pages. Cloth. Price, three shillings.]

More or less differing in arrangement from other works of its class, this volume shows in separate sections, 319 companies situated in the Malay States, Java, etc.; 121 companies in India, Ceylon, etc., 79 companies in other parts of the world, and 29 rubber financial and trust companies. This arrangement facilitates reference in a general sense to broad divisions of rubber cultivation, while the details of acreage, production, etc., are latest available at time of publication. That this is the sixth annual edition, bears testimony to the general appreciation of the work.

One interesting fact is given prominence, bearing upon the cultivation of plantation rubber; the production of which in 1910 was less than one-tenth of the world's supply, but during 1911 reached nearly a sixth. It is estimated that during the present year the supply may exceed one-fourth of the world's total. While rubber receipts at Pará have been almost stationary since 1906. The annual quantity of plantation rubber auctioned in London has increased during that time from 348½ tons to 9,699 tons.

The work is well printed in bold type and will prove of general interest to the rubber trade.

EUROPEAN BALLOON AND AEROPLANE FABRICS.

E. J. Willis & Co., New York, had an interesting display, at the recent Aeronautical Exhibition, of the balloon and aeroplane fabrics made by Metzeler & Co., Munich, Germany. This is one of the oldest companies making fabrics of this character in existence. It was doing quite a little in this sort of work 20 years ago, before aviation in its present advanced estate was dreamed of. Many of the famous dirigible balloons that have been operated so successfully in Europe were made of its fabrics. The New York representative is the Theo. H. Gary Co.

THE OBITUARY RECORD.

S. LEWIS GILLETTE.

S. LEWIS GILLETTE, for many years manager of the clothing department of the American Rubber Co., died at his home at Riverbank Court, Cambridge, Massachusetts, on June 19, in his sixty-third year. He was born in Colchester, Connecticut, but came to Boston at the age of 18, and entered the employ of the



S. LEWIS GILLETTE.

C. M. Clapp Co., jobbers in rubber goods; remaining with that house for fifteen years until the formation of the American Rubber Co., in 1882, when he joined that corporation and assumed charge of its clothing department. He remained in this position up to four years ago, when he was obliged to retire because of failing health. He was continuously in the rubber trade for forty-one years. He was widely known in a social way in Boston, being a member of the Algonquin, Corinthian Yacht, Chestnut Hill, Wollaston, and Padisco Golf clubs. His funeral was held at Waterman's Chapel, Roxbury, on the afternoon of Thursday, June 20, and he was buried at his old home in Colchester, Connecticut, the following day.

Mr. Gillette was one of old time New England rubber men. Although he served his apprenticeship under C. M. Clapp, and later was associated for years with R. D. Evans, he had none of the marked characteristics of either man. He was quiet, unassuming and retiring. Methodical, conscientious, conservative, he was yet possessed of energy and strong common sense. He made few close friends, and no enemies. The trade had seen but little of him for the past few years as he was a real though uncomplaining invalid.

CHARLES H. BISHOP.

Charles H. Bishop, who since the first of January, 1904, had been connected with the Hodgman Rubber Co., New York, as a salesman, for a number of years past being their representative in the South and Southeast, died June 6 at his home, 227 Brooklyn avenue, Brooklyn.

Mr. Bishop was born in Brooklyn 50 years ago. He had been associated with the rubber trade for 28 years. In 1884 he became connected with the Metropolitan Rubber Co., New York. A few years later he went into business for himself in connection with two others and formed the Sterling Rubber Co. He later became associated with the Crescent Rubber Co., where he remained for 8 years—up to the time of his joining the Hodgman company.

He was taken ill with a hemorrhage of the stomach while in Memphis, Tennessee, on March 22. As soon as it was practicable, he was moved to his home in Brooklyn and appeared to be regaining his health, but the sudden recurrence of his trouble terminated fatally. He leaves a widow and a son, Charles H. Bishop. The funeral was held at his home on Sunday, June 9, and the burial took place in the Cypress Hills Cemetery.

NEW TRADE PUBLICATIONS.

THE Mechanical Rubber Co. (Chicago Rubber Works), Chicago, Illinois, has issued a forty-page catalog devoted to plumbers' rubber specialties. This booklet illustrates and describes a great variety of plumbers' supplies in the line of stoppers, tank balls, washers, packers, cushions, gaskets, bumpers, drain boards, mats and tubing. The catalog is indexed for quick and easy reference.

"The Inventors' Outlook" is a new monthly magazine, the May number being its first issue, intended, as its name implies, for the special benefit of the inventor. It will cover both domestic and foreign matters of interest to inventors and others concerned in the general progress of the arts and sciences. There will be a department in which court and patent decisions will be reviewed and hearings on the Oldfield Bill for the revision of the patent laws will be fully discussed. The editor and founder is Joseph J. O'Brien, author of "The Inventions of Edison," "The Department of Public Works," and several other books. The initial number contains an interesting paper entitled "What Edison Thinks About the Patent System," being his answer to a number of leading questions propounded by the editor. It is published in Washington, D. C.

A BANIGAN BANNER AND A CANDEE CARD.

The art mills of the United States Rubber Co. have been very industrious of late. Early in June the company sent out a banner advertising the Banigan brand of rubbers. It is a handsome piece of lithography, 20 x 30 ins. in size, printed in at least ten colors—possibly more—and shows old Silas Green of Andover on his way home from town in his one-horse sleigh. He has obviously been making some purchases. Just back of the seat is a large can full of oil; close beside him on the seat is a large jug—contents unknown—and in the back of the sleigh and forming the most conspicuous part of the picture, is a case of Banigan rubbers, indicating that Mr. Green is wiser than his name implies and gets Banigan rubbers in quantity, for himself and all his family, and possibly for the neighbors. Some rude boys are snowballing the old gentleman, which serves to add life and interest to the picture—if not serenity to his feelings. It is a fine country winter scene, and makes an attractive picture for wall or window.

Closely following the Banigan banner The United States Rubber Co. issued a card advertising the Candee brand of footwear. This is of a totally different character from the style of art described above. It is a card about 14 x 21 inches in size, printed in four or five colors, showing a quiet ocean scene with some sail boats in the distance, and in the immediate foreground a wonderful pickaninny submerged to his neck. His head, which is about half life-size is set off with a delicate fringe of wool over a lofty forehead, and further embellished with eyes that show a great deal of white and a mouth made conspicuous by a strong set of glistening teeth. Nothing more is seen of this young person except three toes of his right foot which emerge just far enough above the water to enable him to balance a well proportioned storm slipper on his great toe. Above the head are the two words "Candee Rubbers" and in the lower corner the Candee trade mark. It can hardly be called a thing of beauty, but it certainly is a striking advertisement and cannot well avoid attracting attention.

New Rubber Goods in the Market.

AN OIL-RESISTING RED TREAD TIRE.

EVERYBODY knows that oil has a most deleterious effect on rubber. That is a too well known fact to people who have to use tires over oiled roads. In these days of automobiling a very considerable percentage of the roads are oiled.



THE RED TREAD VACUUM-CUP BICYCLE TIRE.

About a year ago the Pennsylvania Rubber Co., produced a vacuum cup tread tire of the ordinary gray rubber color. These vacuum-cups were intended to make the tire non-skidding, on the principle that when these cups were compressed against the surface of the road a certain suction was produced that kept the tire from slipping sidewise. This company has now brought out another vacuum-cup tread tire, but instead of making it of gray rubber the tread is made of red rubber. The ingredient in the composition which gives the red color was put there, not primarily for that purpose, but in order to resist the action of oil, and to the extent that this new composition is oil-resisting it of course increases the durability and satisfactory service of the tire. [Pennsylvania Rubber Co., Jeannette, Pennsylvania.]

WATERPROOF TIRE TRUNKS.

In these days of extensive motoring when almost everyone who owns a car converts it at times into a touring car and goes on long trips from one city to another, every available inch of space in the car that can be used for baggage has to be utilized. With this idea in mind, certain manufacturers have put out circular packing cases to fit into the extra tires that have to be carried on any considerable journey.

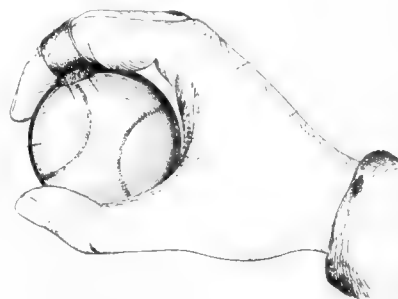


ROLL-DOOR TIRE TRUNKS.

The accompanying cuts show two styles of the "Roll-Door Tire Trunk," made for this purpose. It is light and thin, but strong and thoroughly waterproof, being made of three-ply wood veneer, covered with a waterproof duck, bound with leather. The door is constructed with a catch lock, so that it rolls back at a touch. It is an exceedingly serviceable motor trunk. [Nathan Novelty Manufacturing Co., 84 Reade street, New York.]

A BASE-BALL CURVE PRODUCER.

For the last 25 years every healthy, red-blooded, patriotic American boy has had just one ambition—to pitch a curved ball. Some have been able to attain to this ambition after more or less painstaking effort, and some have not. But all can take



RUBBER BASEBALL CURVER.

heart now, for here is a device for assisting the fingers of the pitcher's hand to give the ball a curve. It is quite a simple device, consisting of a rubber band, about an inch wide, which goes over two fingers of the hand. Attached to this band, on the side that comes next to the ball, is a rubber vacuum cup. The theory is that when the ball leaves the hand, the vacuum cup clings for an instant to the ball and gives it a decided twist as it starts on its way for the home plate. Just whether "Christy" Matthewson and "Rube" Marquard will find this appliance of any material assistance cannot at present be definitely stated; but without question it will appeal to a great many thousand boys who, during the summer months, will spend all their afternoons on the village diamond. [Patentee, Ralph Wilson Jones, Lincoln, Nebraska.]

VACUUM BASKET-BALL SOLES.

RUBBER molded goods of the vacuum-cup description have been made for some time, particularly in the line of toilet brushes and horse brushes. More recently soles for shoes to be used in ath-



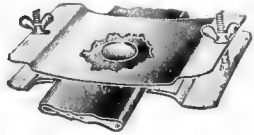
VACUUM-CUP SHOE SOLES.

letics have been made of this pattern; and now comes a sole particularly designed for the basket ball player. It is made by the same company that has been putting out the vacuum-cup brush and other molded goods mentioned above. The game of basket ball is particularly hard on the player's feet, as it is an indoor sport and usually played on hard floors. This suction-cup sole is designed to give the player the maximum comfort and immunity from sliding. When in his wild dives and rushes across the floor he lands on the soles of his feet, he strikes on the edges of the raised cups which are immediately flattened, so that the

hard wear really comes—not on these cup rims—but on the wide reinforced edge of the shoe. When the shoe is lifted from the floor just enough suction is formed by the vacuum-cup to keep the wearer from sliding. The manufacturers make not only the soles all in one piece, but also make soles and heels separate, which are sold to the manufacturers of sporting shoes. [The Flexible Rubber Goods Co., Salisbury, Connecticut.]

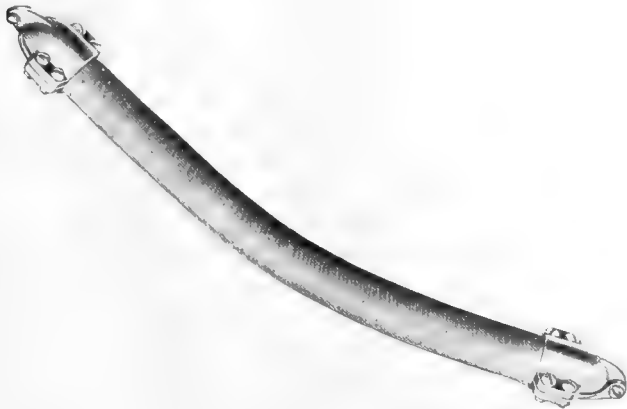
THE "HOCO" TIRE PATCH CLAMP.

Among some of the new contrivances for mending tires is one called the "Hoco" clamp. It is made of steel, with aluminum finish, is about 5 x 8 and weighs 2 pounds, therefore is of convenient size to carry around. When clamped upon the inner tube, it forces the cement to the extreme outer edges of the patch where it is most needed. It not only clamps the patch tightly to the inner tube, but also prevents any air bubbles rising, or the edges peeling back. [Montgomery, Ward & Co., Chicago, Illinois.]



AN AEROPLANE SHOCK ABSORBER.

It is obvious enough that an aeroplane—from the very nature of its work—is liable at times to hit the ground very hard. To be sure, the experienced aviator usually alights with very little shock. The amateur, on the other hand, usually strikes the earth with a thud. But even in the hands of an expert the flying machine is likely at any time to land very suddenly, and any device that will tend to lessen the shock of the impact is sure of a welcome. The pneumatic tires on the wheels, of course,



GOODYEAR BLERIOT TYPE SHOCK ABSORBER.

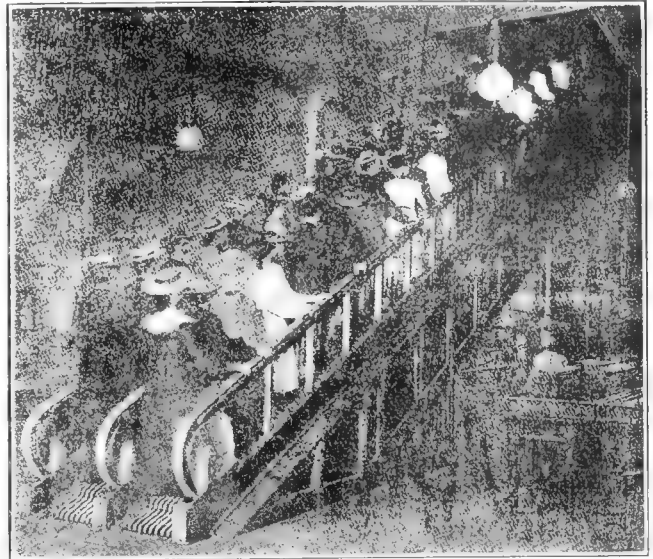
help materially; but it has been found by aviators that some additional shock absorber is eminently desirable.

The Goodyear Tire & Rubber Co. has produced a shock absorber which it called the "Goodyear Bleriot" that has been tried by a number of American monoplanists with satisfactory results. The accompanying cut gives a little idea of its appearance. It is made from 14 to 18 inches in length with a diameter of 1 5-16 inch. It is made of such a combination of molded rubber as will give it the greatest strength and elasticity. It is wrapped under tension with a diagonal thread fabric. The aim is to make it tough, durable and capable of standing tremendous shocks. Strong metal clamps securely fastened at each end connect the absorber with the framework. They come in sets of four. Under a load of 300 pounds they will stretch eight inches and have an ultimate stretch of over 200 per cent. [Goodyear Tire and Rubber Co., Akron, Ohio.]

Replete with information for rubber manufacturers: Mr. Pearson's "Crude Rubber and Compounding Ingredients."

MOVING STAIRWAYS FOR FACTORIES.

The primary reason for mentioning this type of escalator is the fact that the hand rail consists of a chain over which is moulded a thick protective covering of rubber. On second thought, there appears another reason for describing it in full—its adaptability to modern rubber factories.



RENO ESCALATOR.

These stairways, though not new by any means, are unusual in factories. The one illustrated will carry 7,500 passengers per hour. The cost of operating is extremely small. They are absolutely safe and are easily controlled. The moving treads are carried upon anti-friction wheels, and the moving hand-rails, as already mentioned, are steel chains covered with rubber. One of the strongest arguments in favor of moving stairways is that the top floors become as desirable to the worker as any others, and this is of great advantage, as the upper floors are always better lighted and ventilated. The same company which makes these stairways also makes them for the purpose of handling merchandise. [Reno Inclined Elevator Company, New York.]

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta-percha for the month of April, 1912, and the first ten months of five fiscal years, beginning July 1:

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
April, 1912.....	\$207,890	\$90,632	\$653,380	\$951,902
July-March	1,710,395	1,232,428	5,330,999	8,273,822
Total, 1911-12....	\$1,918,285	\$1,323,060	\$5,984,379	\$9,225,724
Total, 1910-11....	1,742,683	1,894,282	5,198,295	8,835,260
Total, 1909-10....	1,580,088	1,593,696	4,082,427	7,256,211
Total, 1908-09....	1,225,882	1,139,271	3,165,096	5,530,249
Total, 1907-08....	1,141,634	1,365,616	3,122,544	5,629,794

The above heading "All Other Rubber," for the month of April, 1912, and for the first ten months of the fiscal years, beginning with July, include the following details relating to tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
April, 1912.....	values \$194,132	\$73,370	\$267,502
July-March	1,869,471	393,920	2,263,391
Total, 1911-12.....	\$2,063,603	\$467,290	\$2,530,893
Total, 1910-11.....	1,528,136	479,213	2,007,349

RUBBER PRODUCTION OF VARIOUS STATES.

IN the general statistics of production, as shown by the census of 1909 (published in the INDIA RUBBER WORLD of May, 1912, page 374), the grand total was shown to be \$202,885,535, composed of the following items:—

	Establishments.	Value of products.
A. Belting and hose	46	\$24,729,221
B. Rubber boots and shoes	22	49,720,567
C. Rubber goods not otherwise specified	227	128,435,747
Total	295	\$202,885,535

The dissection of these items among the various states represented shows the following results:—

A.—BELTING AND HOSE.

	Establishments.	Value of products.
New Jersey	12	\$9,792,625
Massachusetts	8	5,041,271
Ohio	5	3,443,460
Maryland	4	1,317,501
New York	5	1,284,077
Illinois	4	1,255,351
Pennsylvania	3	1,074,843
All other states	5	1,520,093
Total	46	\$24,729,221

[The 5 factories for which separate state production is not given are situated as follows: California, 1; Connecticut, 1; Delaware, 1; Michigan, 1; Oklahoma, 1.]

B.—RUBBER BOOTS AND SHOES.

	Establishments.	Value of products.
Massachusetts	8	\$18,722,363
All other states	14	30,998,204
Total	22	\$49,720,567

[The 14 factories for which separate state production is not shown are situated as follows: Connecticut, 5; Indiana, 1; Missouri, 1; New Jersey, 2; Pennsylvania, 1; Rhode Island, 3; Wisconsin, 1.]

C.—RUBBER GOODS, NOT OTHERWISE SPECIFIED.

	Establishments.	Value of products.
Ohio	37	\$53,910,531
New Jersey	36	19,543,489
Massachusetts	29	15,796,490
Connecticut	13	11,004,556
New York	53	8,783,693
Pennsylvania	13	4,686,330
Indiana	11	4,312,650
Rhode Island	5	3,142,529
Illinois	13	381,363
California	5	322,727
All other states	12	6,551,389
Total	227	\$128,435,747

[The 12 factories for which separate state production is not shown are situated as follows: District of Columbia, 1; Michigan, 2; Minnesota, 2; New Hampshire, 1; Tennessee, 1; Texas, 2; Wisconsin, 3.]

It is understood that the object of grouping the returns of the states with fewest establishments, is to preserve the confidential

nature of the statements made by manufacturers to the special agents. With a small number of establishments, the returns could be identified, which it is desired to avoid.

WHICH IS THE LARGEST RUBBER MANUFACTURING STATE?

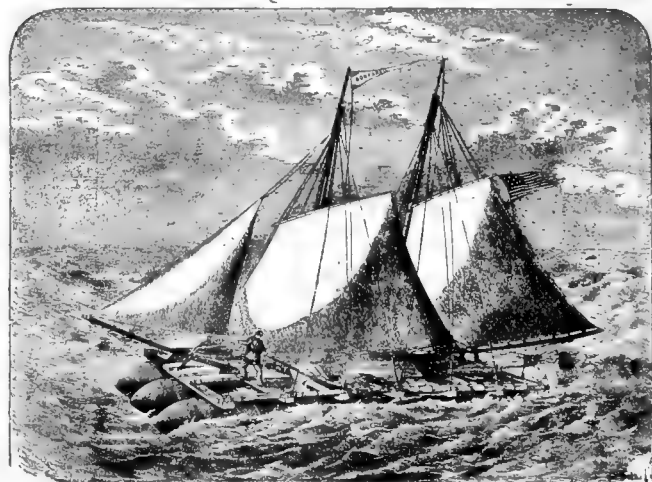
By grouping under the separate states the returns for the three classes of products, the following results are shown:

MANUFACTURES OF RUBBER, CENSUS OF 1909.

	Belting and Hose.	Boots and Shoes.	All other.	Total.
Ohio	\$3,443,460		\$53,910,531	\$57,353,991
Massachusetts ..	5,041,271	\$18,722,363	15,796,490	39,560,124
New Jersey	9,792,625		19,543,489	29,336,114
New York	1,284,077		8,783,693	10,067,770
Connecticut			11,004,556	11,004,556
Pennsylvania ...	1,074,843		4,686,330	5,761,173
Indiana			4,312,650	4,312,650
Rhode Island ...			3,142,529	3,142,529
Illinois	1,255,351		381,363	1,636,714
Maryland	1,317,501			1,317,501
California			322,727	322,727
All other states...	1,520,093	30,998,204	6,551,389	39,069,686
Total	\$24,729,221	\$49,720,567	\$128,435,747	\$202,885,535

LIFE-SAVING RAFTS.

THE universal discussion of better life-saving means, provoked by the terrible "Titanic" disaster, has moved the La Favorite Rubber Manufacturing Co., of Paterson, New Jersey, to distribute a large print of the famous raft "Nonpareil," patented by Edward L. Perry in 1864, in which John Mikes, with two men for a crew, crossed the Atlantic in the summer of 1867. This raft consisted of three rubber cylinders supporting a wooden frame which held the three cylinders in place. Rolled up it occupied a space of only 6 inches by 2 feet and 12 feet long. With the cylinders in-



MONITOR LIFE-SAVING RAFT "NONPAREIL."

flated and the raft constructed it was 12½ feet wide by 22 feet 6 inches long and could support 7 tons. For its transatlantic trip, which it made in 7 weeks, it was fitted out with sails. It would certainly seem that some such collapsible device as this, without the sails, could be stowed away on the decks of steamers in sufficient numbers to take care of any number of passengers. The work of inflating the cylinders and putting the frame together requires but a few moments.

News of the American Rubber Trade.

THE UNITED STATES RUBBER CO.'S PLAN APPROVED.

COL. SAMUEL P. COLT, president of the United States Rubber Co., presided at the special meeting of the stockholders held June 18 to act upon the financial plan proposed at the annual meeting of stockholders in May. No opposition developed and it was approved by more than the necessary two-thirds vote of every class of stock. The plan was approved by the following vote: First preferred, 273,955; second preferred, 79,384, and common, 225,027.

The Board of Directors declared the regular quarterly dividends of 2 per cent. on the first preferred stock, $1\frac{1}{2}$ per cent. on the second preferred stock and 1 per cent. on the common stock, payable, without closing of transfer books, on July 31 to holders of record at 12 m. on July 6 (not including the holders of the \$5,000,000 new common stock issuable July 8, as hereinafter mentioned).

Pursuant to the financial plan recently approved by the stockholders, the Board also declared a common stock dividend of 20 per cent., payable in such stock on July 8 to the holders of record of the common stock at the opening of business on that day.

To cover fractions of shares the usual interim scrip will be issued, which will be exchangeable for stock certificates, when surrendered in amounts aggregating one or more full shares, but which will not be entitled to receive any cash dividend declared or subscription rights prior to the date of exchange.

Also in pursuance of the financial plan, the Board authorized the offer to the holders of record at 3 p. m. on July 12, 1912, of all the stock of the company of all classes then issued (thus including the holders of the new common stock issued as a dividend on July 8) of the right ratably to subscribe for \$10,000,000 of first preferred stock to the extent of $12\frac{1}{2}$ per cent. of their holdings. Subscription warrants will be issued upon which payment must be made on August 15, 1912. Payments for stock on that date will entitle the holders to interest at the rate of 8 per cent. per annum until October 1, 1912, being the same rate as the regular cash dividend now being paid on the first preferred shares. The interest from August 15 to October 1 will be equivalent to 1 per cent. on the par value of the stock subscribed for. The new stock will carry dividends for the quarterly period beginning on the latter date, and the stock certificates will be deliverable as soon as practicable after the closing of the books for the October dividend, together with checks for the interest on the subscription warrants.

The transfer books of the company will be closed from the close of business July 12 to 10 a. m. July 17, 1912.

SCRAP RUBBER DEALERS FORM A CLUB.

In the reviews of trade in old material during the year ending December 31, 1911, which were published in January, many writers deplored that there was not in existence some organization which would correct the abuses existing in the trade, and which would take the lead in standardizing merchandize, appear before railroad commissions when they make up their classifications, and when they fix minimum weights of carloads; which also would appear before our legislators when the tariff is under revision, and do many things which could be accomplished only through organized, concerted effort.

A step in the right direction has at last been taken by some of the leading dealers in scrap rubber, who have formed the Scrap Rubber Dealers' Club. The object of this club is to meet socially, thereby promoting a more friendly feeling, and to discuss subjects of interest to the trade in general. Several meetings have already been held, and fair progress has been made. Not only

has good fellowship been promoted, but among the practical results of the discussions will be a uniform contract for buying goods, and a circular describing what shall constitute good delivery of the different grades of scrap rubber.

The larger dealers have for some time past been guided by circulars which they receive from the manufacturers, but the dealers who do not sell direct to the manufacturers were subjected to much annoyance because they had no circular to guide them. A great deal of unpleasantness will be avoided when each dealer in scrap rubber will receive a circular describing the different grades of goods, so that he will know how the different grades should be assorted.

It is hoped that later the question of arbitration in cases of disputes among dealers will be solved similar to the manner in which now arbitration committees of the different chambers of commerce settle disputes without litigation.

It is also hoped that some steps may be taken to have some correction made of glaring errors which exist in the tariff, and which hinder the importation of goods from abroad. The dealers in these goods recognize the mistakes much easier than the legislators do, and it will be necessary only to bring it properly before the committees which have charge of the revision of the tariff to have the injustice corrected.

When it is considered that the value of old scrap metal handled in the United States during 1911, according to published statistics, amounted to fifty-two million dollars, that the value of scrap rubber at a moderate estimate amounted to probably not less than twenty-five million dollars, and that the value of rag and paper stock amounted to a great many million dollars, it must be admitted that the men who gather and handle this material help in the conservation of the country's resources. Few people realize how great a factor the dealer in scrap material is in the economy of the country; if they did they would treat the junk dealer with the greatest respect. It is surprising that the old material trade has lagged behind in regard to trade organizations, while in other lines of business so much has been accomplished through combined effort.

The scrap rubber dealers have set an example which should be followed by the dealers in other branches in the old material trade. The business should be raised to the dignity which it deserves.

ARTHUR T. HOPKINS GOES TO CLEVELAND.

Arthur T. Hopkins, who had been with the Boston Woven Hose and Rubber Co. for the last thirteen years—the first seven years as assistant superintendent and the last six years as superintendent of their factory at Cambridge, Massachusetts—has resigned to take the management of the factory of the Mechanical Rubber Co., Cleveland, Ohio. His successor at the factory of the Boston Woven Hose Company is J. W. Fellows, who has been with the company for a number of years.

"PARAGOL" A VULCANIZED CORN OIL.

The Corn Products Refining Co., of New York city, has succeeded in producing a material by vulcanizing corn oil that is interesting a great many rubber manufacturers. It has not quite the resiliency of rubber, but still, it has a great deal of resiliency, and what is more to the point, it seems to keep it indefinitely. It is being used quite extensively in the manufacture of small rubber articles, and it has in fact been used with success in such important articles as belts and tires. It is also used in some of the harder kinds of rubber. This product comes in three different grades—soft, medium and hard. It might be stated that there are no minerals added to increase its weight or bulk.

NEW INCORPORATIONS.

CANADIAN CATARACT RUBBER Co., Limited, May 17, 1912; under the laws of Ontario; authorized capital, \$250,000. Incorporators: Emanuel Julius Miner Block and Jacob Dilcher, both of Buffalo, New York, and Lorenzo Clarke Raymond, Welland, Ontario. To construct and operate a complete rubber plant for the manufacture of automobile tires, horseshoe pads, and all kinds of tires, etc.

Gotham Sporting Goods Co., May 27, 1912; under the laws of New York; authorized capital, \$10,000. Incorporators: Benjamin Goodman, 354 Franklin street, Buffalo, New York; Henry Ephraim, 57 Warren street, New York, and Ben Stacy, 526 West One Hundred and Fifty-eighth street, New York. Location of principal office, New York. To deal in sporting goods, tires, rubber goods, etc.

The Hadfield Rubber Co., June 8, 1912; under the laws of Ohio; authorized capital, \$10,000. Incorporators: John, Hugh R., and Maude M. Hadfield. Location of principal office, Akron, Ohio. To buy, own or sell all articles, merchandise, etc., of which rubber is a component.

Hubmark Rubber Co., May 16, 1912; under the laws of Massachusetts; authorized capital, \$25,000. Incorporators: George H. Mayo, 174 Congress street; William H. Mayo, 197 Congress street, and Orvil W. Smith, 401 Sears Building—all of Boston, Massachusetts. To purchase, sell and deal in rubber goods and footwear of all kinds.

Liberty Rubber Co., May 22, 1912; under the laws of New Jersey; authorized capital, \$50,000. Incorporators: B. S. Matnz, L. H. Gunther, and John R. Turner—all of 15 Exchange Place, Jersey City, New Jersey. To manufacture, buy, sell, compound and produce rubber tires, rubber cement and all goods of which rubber is a component part.

Manchester Rubber Co., May 24, 1912; under the laws of New York; authorized capital, \$10,000. Incorporators: Sam Honeyman, 1115 Main street, Lynchburg, Virginia; Alfred Van Wagner, Hollywood avenue, Far Rockaway, New York, and Samuel Rosenberg, 225 Dumont avenue, Brooklyn, New York. Location of principal office, New York. To manufacture rubber clothing, etc.

Mohawk Tire Co., June 13, 1912; under the laws of New York; authorized capital, \$6,000. Incorporators: Henry J. Moses, Winifred G. and Clarence B. Rice—all of Syracuse, New York. Location of principal office, Syracuse, New York. To deal in automobile tires.

Non-Destructible Tire Protector Co., June 7, 1912; under the laws of New York; authorized capital, \$25,000. Incorporators: Martin Pelz, 849 Willoughby avenue, Brooklyn, New York; William Weiner and Herman Seufert—both of 202 Weirfield street, Brooklyn, New York. Location of principal office, Brooklyn, New York.

The Peerless Rubber and Tire Co., May 28, 1912; under the laws of Ohio; authorized capital, \$10,000. Incorporators: R. G. Nieman, John T. Hickman, and Edward Umbstaetter. Location of principal office, Toledo, Ohio. To buy, sell, and deal in automobile tires and accessories, rubber goods, etc.

Resilient Punctureless Tire Co., June 18, 1912; under the laws of New York; authorized capital, \$200,000. Incorporators: Seth H. Sheldon, 106 West Seventy-first street, New York, and Flossie H. and Leroy McCready—both of 62 West Ninety-third street, New York. Location of principal office, New York.

Resilio Tire Co., May 25, 1912; under the laws of New York; authorized capital, \$100,000. Incorporators: Edgar T. Wallace, T. S. Williamson, and L. H. Starkey—all of 71 Broadway, New York. Location of principal office, New York. To manufacture automobile tires, etc.

Robert Stock Auto Spring Wheel Co., May 28, 1912; under the laws of New York; authorized capital, \$300,000. Incorporators: Robert Stock, Tuckahoe, New York; Joseph F. Bokelmann, Yonkers, New York, and Augusta M. Stock, Tuckahoe, New York. Location of principal office, New York. To manufacture auto spring wheels, etc.

PRODUCTION OF ASBESTOS IN THE UNITED STATES.

Asbestos is unique among minerals, in the fact that it has a distinct fibrous structure with a high degree of flexibility and tensile strength, and furthermore—a very important point—it is non-combustible. The demand is constantly increasing for asbestos fabrics, insulating tapes, steam packings and friction facing in automobile brakes. Workers in molten metal find asbestos leggings and shoe coverings exceedingly desirable.

Only the higher grade of asbestos can properly be used for steam packing; the lower grades are used for making shingles, slates and boards.

The little booklet recently sent out by the Department of the Interior, United States Geological Survey, gives an advance chapter from "Mineral Resources of the United States for the Calendar Year of 1910" on the production of asbestos. The United States produced in 1910, 36,093 tons of asbestos, valued at about \$70,000, showing an increase of 20 per cent. in quantity, and 9 per cent. in value over the preceding year. There are four producing states, Georgia, Idaho, Vermont and Wyoming; Vermont and Georgia leading and showing an increased output of 23 per cent. over their production for 1909. The asbestos produced in Vermont and Wyoming is the chrysotile variety and is more valuable than the amphibole variety produced in the other two States. The asbestos production of the United States, however, is only about 1/12 of that of Canada.

WHEN THE DAILIES TALK ON RUBBER.

Not the most valuable but without doubt the most entertaining information that can be secured regarding the rubber industry is to be found in the daily prints. A recent issue of a highly reputable and influential daily, published in Maine, in the course of a half-column article on rubber growing, makes several interesting statements.

Speaking of the necessity of finding some substitute for rubber, it remarks that "the rubber plant of the tropics cannot be tapped profitably before it is 25 years old—50 years is better." Imagine the speculative public investing its money in rubber plantations with the prospect of getting returns in 50 years.

Here is another interesting statement. "Millions of dollars have been invested in rubber plantations in Mexico and other tropical countries, but it must be years before any substantial returns are had from these investments." This statement is quite consistent with the first, but not particularly consistent with the fact that English investors have in some cases received as high as 400 and 500 per cent. from their plantation properties in Ceylon and the Malay peninsula.

And here is a third: "A French chemist by a secret process has produced an article which has all the desired properties of rubber and something more. The French automobile makers are using tires (made of this secret substance) on their new cars." If they are, they certainly are keeping very quiet about it.

KATZENBACH & BULLOCK CO.

The annual meeting of the stockholders of the Katzenbach & Bullock Co., Trenton, was held early in June, when the retiring directors were re-elected and the directors in turn elected the same officers to serve for the ensuing year as had served previously, namely, William Katzenbach; president; Edward L. Bullock, vice-president; Frederick F. Katzenbach, secretary and treasurer. The company report an increasing volume of business and note particularly a growth in their trade with the rubber manufacturers.

**THEODORE N. VAIL, THE NEW UNITED STATES RUBBER CO.
DIRECTOR.**

At the last annual meeting of the United States Rubber Co., held in New Brunswick, May 21, Theodore N. Vail was elected a director of the company. Ordinarily the expression is only a piece of reprehensible slang, but in referring to Mr. Vail—considering both his characteristics and his position as president of the American Telephone and Telegraph Co.—it seems quite



THEODORE N. VAIL.

justifiable to refer to him as a "live wire." Certainly it describes him. There are few men in American life today that have his superabundance of energy and personal force.

He was born in Ohio in July, 1845. That makes him at the present time 67 years old, but he doesn't know it. One of his illustrious ancestors was John Vail, the Quaker preacher, who settled in New Jersey in 1710, but Mr. Vail himself doesn't look very much like a Quaker. Though he was born in Ohio, he

spent the greater part of his youth in New Jersey, and in due time graduated from the Morristown Academy. An uncle was a doctor, and they put the boy in his office, where he perused medical literature with more or less assiduity for two years. But guessing whether a patient had whooping cough or St. Vitus dance didn't appeal to young Vail, and in outside moments in a local office, he had learned telegraphy, and when about that time his father moved to Iowa, he accompanied the family but pushed on still further, to Missouri, and got a position as telegrapher. That was about 1869. Shortly after a friend secured him a position in the railway mail service, which in those early days was as slow, unsystematic and chaotic as a government service could well be. Young Vail immediately set to work, though only a clerk, to devise schemes for systematizing the service. He attracted the attention of the authorities at Washington, and they made him assistant superintendent of the railway mail service. This was followed soon after by his appointment, in 1876, to the position of general superintendent. The present efficient character of the railway mail service dates back to the innovations of Mr. Vail's incumbency.

About that time a youngish man, Alexander Graham Bell, was working out a scheme of talking over a wire. Most people said it was a crazy scheme, but Mr. Vail thought there was a great deal in it and he became general manager of the American Bell Telephone Co. in 1878. He had some great dreams regarding what the telephone might do and much disturbed the directors of the company, who thought it never could be used except locally, by insisting that if you could talk over wire for a mile or two you could do the same thing for many miles. He built a telephone from Boston to Lowell, and then one from Boston to Providence. Even the telephone people said that wouldn't work, but Vail said it would, and it did. Under his direction the telephone rapidly became a colossal institution.

In 1890 he thought he would retire from commercial life and take up farming, which had always appealed to him. He

bought a large farm in Vermont and started in to raise a great variety of fancy stock. Incidentally he traveled a great deal, and in 1893 going to South America and seeing what tremendous opportunities there were there he couldn't resist the temptation to do something. Among the things he did was to build, just outside the city of Cordoba, an electrical power plant that practically did the whole work of the city—lighting it, carrying its people in the street cars and running all its factories. Then he bought a horse-car line in Buenos Aires and soon had the streets covered with a wonderful trolley system. But these incidental activities were not enough to satisfy Mr. Vail, and in 1907 he took the presidency of the great American Telephone and Telegraph Co., and what that is and what it is doing nobody needs to be told.

PERSONAL MENTION.

W. R. Bliss, who has had many years' experience in the mechanical rubber goods line, having been connected as salesman at different times with the Manhattan Rubber Manufacturing Co., The Diamond Rubber Co. and the Gutta-Percha and Rubber Manufacturing Co., has been appointed manager of the mechanical goods department of the Goodyear Tire and Rubber Co., Akron, Ohio.

Charles V. Wick, who has been with the selling department of the New York office of the United States Rubber Co. for the past 15 years, was married to Miss Mary Schad, of Richmond Hill, Long Island, on June 26.

Charles I. O'Neil, who had been connected with the New York office of the United States Rubber Co. for 10 years, most of that time in the selling department, has joined the Iroquois Rubber Co., Buffalo, New York, in the capacity of salesman.

LARGE EXPORTS OF AUTOS AND AUTO TIRES.

According to figures just given out by the Bureau of Statistics at Washington, the exports of automobiles for the year ending June 30, 1912, will prove to amount to 20,000 in number, with a valuation of \$27,000,000. This includes not only the value of the entire machines but of the parts exported and of tires, which alone amount in value to nearly \$3,000,000. These figures cover only the exports to foreign countries and do not include the 900 machines, valued at \$1,500,000, sent to the distant possessions of the United States.

The growth in exports of automobiles from the United States has been especially marked during the period since 1905, this growth being coincident with the expansion of the domestic industry and a corresponding decrease in imports of automobiles. The value of domestic manufactures of this class of articles increased from 5 million dollars in 1899 to 30 million in 1904, an increase of 25 million dollars; while in the period from 1904 to 1909 the value of the output increased practically 220 million dollars, from 30 million dollars in 1904 to 249 million in 1909. Accompanying this notable growth in production, the imports of automobiles decreased from 4¼ million dollars in 1906 and 4¾ million in 1907 to approximately 2½ million dollars in 1912.

Approximately 25 per cent. of the automobiles exported from the United States are shipped to Canada; about 40 per cent. to Europe, chiefly Great Britain; about 20 per cent. to British Australia, about 8 per cent. to South America. During the ten months, ending with April, the latest period for which figures of distribution are available in the Bureau of Statistics, 4,716 automobiles were exported to the United Kingdom, 4,424 to Canada, 3,034 to British Oceania, 1,282 to South America, 849 to Asia, and other Oceania, and 2,502 to all other foreign countries. There were also shipped, during the same period, 410 automobiles to Hawaii, 342 to Porto Rico and 11 to Alaska.

FRED T. RYDER WITH THE CONSUMERS' RUBBER CO.

Mr. Fred T. Ryder has been appointed general selling agent of the Consumers' Rubber Co., of Bristol, Rhode Island. There are very few men who have had a more extended connection with the rubber footwear trade than Mr. Ryder. He became connected with the Boston Rubber Shoe Co., as private secretary to the late Elisha S. Converse over 30 years ago. He served as Mr. Converse's secretary for over 20 years, but, in addition to that work gradually assumed various other positions, being secretary and assistant general manager of that company at the time it was purchased by the United States Rubber Co. He was also for some years treasurer of the Easthampton Rubber Thread Co.



FRED. T. RYDER.

After the Boston Rubber Shoe Co. became a part of the United States Rubber Co., Mr. Ryder was for some years one of the selling agents of the latter organization, with particular charge of the sales of the Boston Rubber Shoe and Bay State brands. He resigned his position with the United States Rubber Co., in January, 1908, and soon after became selling agent of the Apsley Rubber Co., a position that he has occupied until quite recently. He goes to the reorganized Consumers' Rubber Co., with a thorough equipment in selling experience, with an extended acquaintance and wide popularity in the trade. The company may esteem itself quite fortunate in having its selling department in Mr. Ryder's hands.

MARRIAGE OF ROSWELL C. COLT.

Roswell Christopher Colt, second son of Col. Samuel P. Colt, president of the United States Rubber Co., was married on June 29, in St. Paul's Church, Knightsbridge, London, to Miss Dorothy Borrandale Chipman, daughter of Mr. and Mrs. C. C. Chipman, of that city. Col. Colt was present at the wedding, having sailed from New York, on the Lusitania, June 18, expressly for that purpose.

COL. COLT IN HIS MAINE CAMP.

Col. Samuel P. Colt, president of the United States Rubber Co., following his annual custom for some years, went to his camp at Mt. Katahdin early in June for a two weeks' outing. He had with him quite a party of invited guests who went and returned in his private car. Among those in the party were Dr. C. S. May and Mr. Nathaniel Myers, of New York; Judge Le Baron B. Colt, Colonel and Mrs. Harold J. Gross, Miss Beatrice Colt, Miss Ruth Anthony, of Boston; the Rev. Dr. George Locke, Bristol, Mrs. Gertrude Child Barrows, Mrs. William Beresford and Mr. Walter S. Ballou, of Providence.

ERNEST BERLYN VISITS AMERICA.

Ernest Berlyn, of Paris, France, who for a number of years has distributed various brands of footwear made by the United States Rubber Co. in that country, recently visited America, for the first time in ten years. He took a tour of inspection through the mills of the Boston Rubber Shoe Co. and other mills whose product he handles, and, together with Mrs. Berlyn, visited Washington and other points of special interest. He sailed from New York on June 18, on the Lusitania.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks, ending June 22:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend, April 30, 1912—1%.

Week June 1	Sales 12,010 shares	High 65¾	Low 61¾
Week June 8	Sales 3,800 shares	High 64¾	Low 63
Week June 15	Sales 3,100 shares	High 64½	Low 62¾
Week June 22	Sales 12,870 shares	High 67	Low 63¾

For the year—High, 67½, May 21; Low, 45¼, February 1.
Last year—High, 48½; Low, 30½.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, April 30, 1912—2%.

Week June 1	Sales 1,705 shares	High 112	Low 111
Week June 8	Sales 1,960 shares	High 112	Low 111
Week June 15	Sales 800 shares	High 111½	Low 111½
Week June 22	Sales 1,700 shares	High 111½	Low

For the year—High, 116, May 20; Low, 109, January 30.
Last year—High, 115½; Low, 104.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, April 30, 1912—1½%.

Week June 1	Sales 700 shares	High 82½	Low 82
Week June 8	Sales 700 shares	High 82½	Low 81
Week June 15	Sales 100 shares	High 81½	Low 81½
Week June 22	Sales 800 shares	High 82¼	Low 80½

For the year—High, 85½, May 21; Low, 75, January 23.
Last year—High, 79; Low, 66.

SIX PER CENT. TRUST GOLD BONDS, \$18,000,000.

Outstanding of the 1908 issue of \$20,000,000.

Week June 1	Sales 35 bonds	High 104½	Low 104½
Week June 8	Sales 43 bonds	High 104¾	Low 104¾
Week June 15	Sales 23 bonds	High 104½	Low 104½
Week June 22	Sales 14 bonds	High 104½	Low 104¾

For the year—High, 105, February 24; Low, 103¾, January 6.
Last year—High, 105; Low, 101¾.

RIGHTS.

Week June 22	Sales 3,300 rights	High 104¾	Low 104¾
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A VEIN OF ASBESTOS IN CALIFORNIA.

A miner, who was developing a gold quartz ledge on his claim in Sierra County, California, recently discovered a large vein of asbestos. It is from 6 inches to 4 feet wide, of a soft and fluffy fibre, which, while short and thus not available for weaving into asbestine cloth or mattings, may have commercial value for fillings for fireless cookers and fireproof roofing.

Samples of this newly discovered asbestos have been sent not only to the State mineralogist for technical classification, but to various manufacturers in San Francisco, and also in the East. One obstacle in the way of a successful development of this asbestos mine, lies in the fact that it is 40 miles from a railroad station, but that is an obstacle that will be readily overcome if the fibre proves to have sufficient value.

NEW CANADIAN REGULATION AFFECTING HARD RUBBER.

By a regulation, under Section 286 of the Canadian Customs Act, which went into effect on June 14, hard rubber in strips or rods, but not further manufactured, when for use in Canadian manufactures, may be imported into Canada free of customs' duty. It should be designated as under item 755 of the Customs Tariff.

GENERAL BAKELITE COMPANY STARTS INFRINGEMENT SUITS

The General Bakelite Co. has brought suits for infringements of its Bakelite patents against the Condensite Co. of America and several users of "Condensite"; among them the Dickinson Manufacturing Co., of Springfield, Massachusetts; the Duranoid Manufacturing Co., of Newark, New Jersey, and Hardman & Wright, of Belleville, New Jersey.

In relation to this, it is of interest to note that the fundamental Bakelite patents have been allowed in Germany and have been sustained by the German patent office, notwithstanding the fact of several public contestations.

A CUSTOMS RULING ON RAINCOATS.

A customs ruling that will be interesting to importers of waterproof garments was handed down by the Board of United States General Appraisers on June 12 in a decision sustaining protests filed by F. B. Vandegrift & Co., relating to importations of waterproof coats. Duty was exacted on the raincoats at the rate of 50 per cent. ad valorem under the provision in the tariff act of 1909 for cotton wearing apparel. The goods were composed of cotton and india rubber, and in the judgment of the Collector cotton was the component of chief value in the merchandise. The importers, however, insisted that the value of the rubber was greater than the cotton, and alleged that the duty should be at the rate of 35 per cent. as manufactures of india rubber. The Collector was reversed.

A CUSTOMS RULING ON RUBBER BELTS.

One of the large dry goods firms of New York recently imported a quantity of belts composed of silk, cotton and rubber with ornaments in various designs made of steel points. The belts were assessed by the collector as silk and India-rubber wearing apparel, at the rate of 60 per cent. ad valorem, under the provision of paragraph 402 of the tariff act. The importer, however, protested and succeeded in getting a new ruling which levied a 45 per cent. duty on the belts under the provisions of paragraph 199 on the ground that their chief value was of metal. This was a case where the ornamentation materially decreased the cost of bringing in the goods.

ILLUMINATING STRIPS.

With the great increase in electrical illuminating devices for decorative uses, there has come into vogue a variety of illuminating strips, both for indoor and outdoor use. These were used on a tremendous scale during the coronation exercises in London last summer. They are made in various ways, but those in most general use are made of a flexible vulcanized rubber cable, which is mounted with small lamp sockets holding bulbs of small



SPECIMEN OF ILLUMINATING STRIP.

candle-power, either clear or frosted or in color effects. These bulbs rest in sockets fitted in the cable at varying distances, from 6 inches to 36 inches apart. These sockets are of brass or aluminum, the latter being distinctly preferable for outdoor use. Rubber rings or sleeves are fitted as a covering for the lamp sockets to make them watertight. These cables come in any length desired and are shipped in coils in a size convenient for handling.

It is stated that two large New York banking houses will take a very considerable part of the new issue of \$5,000,000 7 per cent. preferred stock of the Goodyear Tire and Rubber Co., Akron, Ohio.

PNEUMATIC TIRES FOR ELECTRICAL VEHICLES.

Building pneumatic tires for electrically propelled vehicles has long been regarded as one of the knotty problems confronting tire manufacturers. It has been necessary to meet two important conditions: First, to make a tire that will give high mileage, and, second, to get a tire sufficiently resilient to keep the current consumption down to the lowest point and the radius action up to the highest.

The ordinary gas-car tire, while suited to the rough work on high-power gas cars is out of place on the electric. This car must have a tire as pliable and resilient as it is possible to make it. A stiff tire not only produces higher current bills, but also increased battery renewal bills, owing to the frequent recharging that it makes necessary.

The United States Tire Co. has issued an announcement regarding a new special electric tire just placed on the market. This tire is guaranteed for 5,000 miles, which in itself is unusual, and furthermore, it has proved in actual tests that it exerts a saving influence on current consumption of from twenty to twenty-five per cent.

TRADE NEWS NOTES.

In explaining the desirability of increasing the capitalization of the United States Rubber Co., President Samuel P. Colt stated that it was considered an opportune time for his company to erect a new tire plant, to be the largest tire plant in the world. He estimates the cost of such a plant at between \$3,000,000 and \$5,000,000. No announcement has yet been made of the probable location of this plant.

Plans are being prepared by the Federal Rubber Manufacturing Co. for a six-story addition to its plant in Cudahy, Wisconsin. The new building will be 400 x 100 feet and will give the company more than double its present capacity. This company is the successor of the Federal Rubber Co., purchasing its plant last July. At that time it had a payroll of thirty-eight men; now, including its factory force, sales force and construction force, it employs over 700 men. Its products include automobile and other tires as well as various other articles.

There was a fire in the plant of the Stamford Rubber Supply Co., Stamford, Connecticut, on June 10, which crippled the company temporarily, but was not serious enough to shut down the plant for more than a few days. The fire started in the black substitute department and the heat was intense, but as the building is of concrete it remained intact, with the exception of the loss of a number of window frames, and with the further destruction of the machinery in the room where the fire originated. The loss was fully covered by insurance.

On June 29 the Intercontinental Rubber Co. paid a regular quarterly dividend of $1\frac{3}{4}$ per cent. on the preferred stock, to stockholders of record June 19.

The Board of Directors of the Rubber Goods Manufacturing Co. on June 5 declared the 53rd regular quarterly dividend of $1\frac{3}{4}$ per cent. on the preferred stock, and a dividend of 1 per cent. on the common stock. Both were paid June 15.

The Republic Rubber Co., of Youngstown, Ohio, makers of the famous Staggard tread tires, have opened a branch in Cleveland, Ohio, at 5919 Euclid avenue. Mr. B. C. Swinehart, who is in charge, has been at the head of the truck tire sales department of the Republic Rubber Co. for three years, and is thoroughly conversant with every phase of the tire business, both in selling and in caring for users.

The Diamond Rubber Co., which is soon to have a branch in Omaha, Nebraska, expects to erect its own building and has secured a plot 22 feet x 70 feet at 2034 Farnam street.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED MAY 7, 1912.

- N** 1,025,142. Machine for making dress shields of indha-rubber. H. Cassirer, Charlottenburg, Germany.
- 1,025,159. Chain guard for vehicle wheels. C. T. Raymond, Chicago, Ill.
- 1,025,203. Tire plug inserter. F. B. Parks, Grand Rapids, Mich.
- 1,025,207. Surgical kit. H. W. Sanford, Washington, D. C.
- 1,025,209. Elastic vehicle wheel. F. I. Sears, Oakland, Cal.
- 1,025,285. Tire armor. C. H. Maddox, Canton, Mo.
- 1,025,321. Apparatus for impregnating fabric with rubber. W. C. Silverson, Buffalo, N. Y.
- 1,025,324. Method of treating leather and product thereof. W. R. Smith, assignor to Buffalo Leather Co.—both of Buffalo, N. Y.
- 1,025,343. Spring wheel. H. V. Stuart, Louisville, Ky.
- 1,025,345. Quickly detachable hinged clincher ring. W. W. Ward, New York.
- 1,025,400. Resilient antiskidding wheel. H. G. Hugon, Calais, France.
- 1,025,410. Sprinkler. R. Lindner, Erie, Pa.
- 1,025,465. Game apparatus. A. B. Hill, Hoboken, N. J.
- 1,025,473. Resilient wheel. F. H. Lacey, Richland, Mo.
- 1,025,483. Vehicle wheel. T. Rhodus, Chicago, Ill.
- 1,025,497. Life saving device. C. J. Wensley, Huntington, N. Y.
- 1,025,504. Combined vibrator and vacuum apparatus. J. Birrell and W. Birrell, Seattle, Wash.
- 1,025,528. Demountable rim. R. E. Jeffery, Piedmont, Cal.
- 1,025,543. Hydrometer for storage batteries. E. W. Smith, Philadelphia, Pa.
- 1,025,571. Foot support. C. A. Howe, Chicago, Ill.
- 1,025,591. Vehicle wheel. C. B. Ross, Greenleaf, Kan.
- 1,025,610. Pneumatic tire for vehicle wheels. G. Desson, Paris, France.
- 1,025,734. Vehicle tire. F. J. Bosquett, Jersey City, N. J.
- 1,025,748. Baseball curver. R. W. Jones, Lincoln, Neb.
- 1,025,800. Mop. W. B. Fuller, Catasauqua, Pa.
- 1,025,854. Automobile tire. L. C. Beaumont, Hudson Falls, N. Y.

Trade Marks.

- 61,183. Sté. Anonyme Pour Le Commerce & l'Industrie du Caoutchouc, Brussels, Belgium. The word *Royal* under tiger's head in circle. For rubber toy balloons.
- 62,185. The B. F. Goodrich Co., Akron, Ohio. The words *Master Tread*. For automobile tires made wholly or partly of rubber.

ISSUED MAY 14, 1912.

- 1,025,986. Bulb. H. W. Lester, assignor to The Post & Lester Co.—both of Hartford, Conn.
- 1,025,987. Tire tool. A. A. Lond, Rochester, N. Y.
- 1,026,038. Tire. G. S. Howe, Richmond, Va.
- 1,026,172. Life preserver. J. A. O'Brien, Seattle, Wash.
- 1,026,201. Spring tire. George Burson, Winamac, Ind.
- 1,026,224. Antiskidding device for vehicles. M. J. Rohr, Washington, D. C.
- 1,026,229. Portable steam vulcanizer. E. A. Stier and R. C. Byrd, Dayton, Ohio.
- 1,026,271. Centrifugal separator. G. M. Leshner, Newark, N. J.
- 1,026,291. Vehicle wheel. A. R. Wylie and J. G. Wright, Big Spring, Texas.
- 1,026,292. Vehicle wheel. A. R. Wylie and J. G. Wright, Big Spring, Texas.
- 1,026,316. Spare tire case. C. F. Hopewell, Newton, Mass.
- 1,026,370. Vehicle wheel. H. J. Sewell, Detroit, Mich.
- 1,026,460. Water bottle for infants. M. L. Rusk, New York.
- 1,026,468. Cushion tire for vehicle wheels. M. J. Selzer, assignor to The American Tire and Rubber Co., Akron, Ohio.
- 1,026,499. Jack for tightening antiskid chains. W. F. Edgington, Springfield, Ohio.
- 1,026,598. Hose. F. R. Neff, assignor to C. A. Daniel—both of Philadelphia, Pa.
- 1,026,611. Electrically heated syringe. M. H. Shoenberg, assignor to The Presto Electrical Mfg. Co.—both of San Francisco, Cal.

Reissue.

- 13,419. Elastic tire. G. S. Doty and J. D. Show, Philadelphia, Pa., assignors to D. & S. Airless Tire Co., of Delaware.

Design.

- 42,526. Elastic tire. P. W. Pratt, Boston, Mass.

Trade Marks.

- 44,457. The Beacon Falls Rubber Shoe Co., Beacon Falls, Conn. The word *Granite*. For rubber boots, etc.
- 62,242. The M. & M. Mfg. Co., Akron, Ohio. The letters *M & M*. A solution for vulcanizing.
- 62,421. Massachusetts Chemical Co., Walpole, Mass. The word *Resistolac*. Insulating compound.
- 62,635. A. G. Spalding & Bros., Jersey City, N. J. The word *Witch*. For golf balls.

ISSUED MAY 21, 1912.

- 1,026,667. Tire inflation mechanism. R. L. Foster, Fort Riley, Kan.
- 1,026,691. Process of producing isoprene. G. Merling and H. Kohler, assignors to Farbenfabriken vorm. Friedr. Bayer & Co.—both of Elberfeld, Germany.

- 1,026,692. Process of producing isoprene. G. Merling and H. Kohler, assignors to Farbenfabriken vorm. Friedr. Bayer & Co.—both of Elberfeld, Germany.
- 1,026,742. Combination hose nozzle and sprayer. F. J. French, Cleveland, Ohio.
- 1,026,803. Automobile tire. E. M. Hamilton, Willow Springs, Cal.
- 1,026,810. Spring wheel. J. Kuehl and J. Stefanowski, Detroit, Mich.
- 1,026,822. Resilient wheel. F. C. Oldham, Brooklyn, N. Y.
- 1,026,829. Vehicle wheel. K. A. Read, Oskaloosa, Iowa.
- 1,026,830. Stopper. W. H. Redington, Evanston, Ill.
- 1,026,836. Pneumatic tire fabric having annular elastic zones. L. A. Subers, Cleveland, Ohio.
- 1,026,858. Pneumatic tire for vehicle wheels. L. A. Garchey, Paris, France.
- 1,026,893. Pneumatic cushion for vehicles. F. I. Baker, Orange, Mass.
- 1,026,903. Resilient wheel. L. Burdy and E. F. Moine, Eureka, Cal.
- 1,026,975. Tire setting machine. C. A. Devero, Keokuk, Iowa, assignor to Keokuk Hydraulic Tire Setter Co.
- 1,026,994. Automatic fire hose valve. P. Mueller, assignor to H. Mueller Mfg. Co.—both of Decatur, Ill.
- 1,027,030. Eraser tip for lead pencils, etc. C. W. Boman, assignor to Eagle Pencil Co.—both of New York.
- 1,027,108. Tire protector. W. T. Dorgan, assignor to The Standard Tire Protector Co.—both of Akron, Ohio.
- 1,027,130. Cushion tire for vehicles. W. S. Holmes, Ithaca, and W. B. Johnson, assignors to A. Zinsser, Jr., New York.
- 1,027,155. Attachment for hose. P. R. Robbins, Philadelphia, Pa.
- 1,027,247. Tire. G. Gray, Sisseton, S. D.
- 1,027,255. Heel for boots and shoes. E. Kempshall, Garden City, N. Y.
- 1,027,363. Wringer. W. M. Valentine, Glen Cove, N. Y.

Trade Mark.

- 59,622. Polack Tyre Co., New York. The words *Polack Tyres* in two circles, with trees.

ISSUED MAY 28, 1912.

- 1,027,438. Rubber overshoe. A. E. Roberts, Norwalk, Ohio.
- 1,027,450. Antiskid device. L. S. Thompson, Jersey City, N. J.
- 1,027,487. Watch guard. G. M. Lindsey and W. A. Lindsey, Los Angeles, Cal.
- 1,027,497. Tire tester. E. H. Neu, Pana, Ill.
- 1,027,507. Vehicle wheel. A. F. Schulz, Milwaukee, Wis.
- 1,027,508. Locking cap for tire valves and the like. M. C. Schweinert, West Hoboken, N. J., and H. P. Kraft, New York.
- 1,027,647. Vehicle wheel. L. R. Gruff, assignor to Auto-Compressed Air Wheel Co.—both of Chico, Cal.
- 1,027,659. Apparel shoe heel. M. Lage, Gladbrook, Iowa.
- 1,027,733. N. H. Horne, Kansas City, Mo.
- 1,027,800. Pneumatic tire protector. C. A. Belew, San Diego, Cal.
- 1,027,897. Ankle supporter. A. Quenzer, New York.
- 1,027,983. Tire. J. Bropson, Cleveland, Ohio.
- 1,027,999. S. A. Deatherage, Richmond, Ky.
- 1,028,067. Machine for manufacturing hose. A. C. Bolton, assignor to The Gutta-Percha and Rubber Mfg. Co.—both of New York.

Trade Marks.

- 48,807. The American Asphaltum & Rubber Co., Chicago, Ill. Circle decorated with dots and lines. For waterproofing asphalt, etc.
- 48,810. The American Asphaltum & Rubber Co., Chicago, Ill. Circle decorated with dots and lines. For mineral rubber, etc.
- 62,442. Goodyear Rubber Hose and Packing Co., Philadelphia, Pa. The word *Siccease* with circle in center connecting first and last letter.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1911.

*Denotes Patents for American Inventions.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 1, 1912.]

- 526 (1911). Coating waste rubber blanks. J. Markus, 107 Corporation street, Manchester.
- *580 (1911). Insulating material for electrolytic apparatus. M. Reid, 506 Caxton Building, Cleveland, Ohio, U. S. A.
- *616 (1911). Hard rubber casings for galvanic batteries. F. W. Schmidt, 127 Edward street, Philadelphia, Pa., U. S. A.
- 603 (1911). Inflatable wearing apparel. D. J. Wintle, Weybridge, Surrey.
- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 8, 1912.]
833. (1911). Rubber disks in machinery for treating fabrics. S. Melling Whitefield, Lancashire.
- 897 (1911). Tube in shuttle threading mechanism. G. Ashton, 72 Regent Road, Morecambe, Lancashire.
- 921 (1911). Tire attachments to rims. A. T. Andrews, The Wheel Works, Smethwick, Birmingham.

- 954 (1911). Pencil holder partly composed of rubber. E. Gerspacher, 23 Stumpfergasse, Vienna.
- 975 (1911). Production of isoprene. P. A. Newton, 6 Bream's Buildings, Chancery Lane, London (acting for Farbenfabriken, Elberfeld).
- 1060 (1911). Convertible goloshes. C. W. Randall, The Hollies, Grove Hill, Woodford, Essex.
- 1065 (1911). Artificial whalebone machinery. W. P. Thompson, 6 Lord street, Liverpool.
- 1071 (1911). Treatment of lac for obtaining silk like strands. W. A. Freymuth, 63 St. James' street, London.
- 1090 (1911). Improvements in driving belts. J. E. Rogers, 20 Somerfield Crescent, Birmingham.
- 1124 (1911). Intermediate products of synthetic caoutchouc. P. A. Newton, 6 Bream's Buildings, Chancery Lane, London (acting for Farbenfabriken, Elberfeld).
- 1125 (1911). Production of caoutchouc substitutes. P. A. Newton, 6 Bream's Buildings, Chancery Lane, London (acting for Farbenfabriken, Elberfeld).
- 1158 (1911). Pneumatic pads for face treatment. M. Gilson, 25 Saville Row, London.
- 1272 (1911). Wrapping and preserving eggs in rubber wrappers. L. A. Pichon, 50 Rue de Berri, Paris, France.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 15, 1912.]

- 1367 (1911). Stethoscope. C. A. Teske, 33 Percy street, Tottenham Court Road, London.
- 1368 (1911). Improvements in manufacture of goloshes. B. Munch, Rostow-on-Don, Russia.
- 1393 (1911). Rubber filling for tire treads. A. Collis, 43 Regent Square, London.
- 1395 (1911). Air chambers for tires. C. S. & J. A. Challiner—both of Victoria Park, Manchester.
- 1445 (1911). Synthetic caoutchouc. A. Heinemann, 10 Summer Terrace, Onslow Square, London.
- *1467 (1911). Elastic cushion in horseshoe. C. E. Pearl, Beachmont, Mass., U. S. A.
- 1471 (1911). Elastic tire bodies and cores. E. J. Clarke, Leytonstone, London.
- 1480 (1911). Exercising apparatus. S. C. Caddy, Keynsham, near Bristol.
- 1512 (1911). Improvements in golf balls. A. C. B. Bell, 17 Lansdowne Crescent, Edinburgh.
- 1525 (1911). Game of "Bolette." J. H. Matthews, Farnham Royal, Buckinghamshire.
- 1646 (1911). Rubber tires. E. B. Killen, 27 Queen Victoria street, London.
- 1680 (1911). Draught excluders. P. F. Farish, 14 Wine Office Court, London.
- 1685 (1911). Rubber tapping knives. H. F. Blyth, Stockton, near Rugby.
- 1723 (1911). Rubber substitute from starch, etc. F. Tolkien, East Barnard, Hertfordshire.
- 1778 (1911). Rubber feet for portable seats. C. Nesbitt, Bearsden, Dumbartonshire.
- 1792 (1911). Insertion of rubber in golf clubs. H. Cawsey, Skegness, Lincolnshire.
- 1927 (1911). Dust shields for wheels. J. Léonard, 27 Avenue Jules Joffrin, St. Maur (Seine), France.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 22, 1912.]

- 2028 (1911). Self-sealing air tubes in tires. J. Steinberg, 29 Rue Buret, Paris.
- 2064 (1911). Fabric for balloons. H. Dittmar, 2 Karolinenstrasse, Munich, Germany.
- 2112 (1911). Antislipping tire. E. J. Buckingham, 193 Upland Road, East Dulwich, London.
- 2123 (1911). Rubber aprons in paper making. R. Marx, 133 Finsbury Pavement, London.
- 2180 (1911). Tire attachments to rims. J. H. Mobley, Dunstable.
- 2195 (1911). Improvements in golf balls. P. A. Martin, Granville street, and J. Stanley, 137 Ivor Road, Sparkhill—both in Birmingham.
- 2202 (1911). Molding heel pads. S. Cooke and W. C. Davis, 58 High Bank, Gorton, Manchester.
- 2228 (1911). Guide rollers for ropes. J. R. Douglas, Box 104, Benoni, Transvaal.
- 2235 (1911). Flexible pipe for collapsible baths. W. A. Laver, 61 Victoria Park Road, London.
- 2252 (1911). Elastic tire bodies and cores. Soc. Fermière De l'Automatique Ducasble, 138, Avenue Malakoff, Paris.
- 2263 (1911). Rubber strips in draught excluders. W. D. Tucker, Lawrence Road, Tottenham, London.
- 2297 (1911). Winding fabrics round pneumatic tires. R. Bridge, Castleton Ironworks, Castleton, Lancashire.
- 2326 (1911). Tire inflating valves. A. Scherber, Markscheider, Kladno, Austria.
- *2338 (1911). Cow milkers. D. Klein, Spokane, Washington, U. S. A.
- 2346 (1911). Rubber washers in horticultural frames. L. H. Chase, Greenhill Road, Liverpool.
- 2357 (1911). Air tubes in pneumatic tires. J. B. de La Puente, 11 Prim, Madrid.
- 2358 (1911). Electric heating. A. Treppeau, 34 Avenue de l'Île, Joinville-le-Pont, Seine, France.
- 2378 (1911). Rubber graining pads. A. J. Boulton, 111 Hatton Garden, London.
- 2391 (1911). Non-refillable bottles. J. Donges, Drayton, Queensland, Australia.
- 2477 (1911). Rubber tires on litter carriages. J. E. Arnold, 6 Giltspur street, London.
- 2478 (1911). Extracting crude rubber. L. Guiguet, 70 Rue d'Alsace, Lyon-Villeurbanne, France.
- 2508 (1911). Rubber tapping knives. F. A. G. Pape, 49 Fenchurch street, London.

- 2526 (1911). Dissolving rubber. H. N. D'A. Drew, Greville street, Prahan, Victoria, Australia.
- 2538 (1911). Rubber pulley blocks for motorcycles. H. S. Yoxall, and C. W. Thornycroft, Oliver street Works, Birmingham.
- [ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 30, 1912.]
- 2638 (1911). Breathing apparatus. R. H. Davis, and Siebe Gorman & Co., 187 Westminster Bridge Road, London.
- 2651 (1911). Rubber ropes for tires. H. Brook, 193 Church street, Blackpool, and J. C. and H. H. Burton, Granby Rubber Works, Post Office Place, Leicester.
- 2823 (1911). Rubber covers for pneumatic tires. B. Grebert, 121 Boulevard Victor Hugo, Lille, France.
- 2931 (1911). Blowers for threading loom shuttles. W. A. Redman, 3 Netherfield Road, Nelson, Lancashire, and J. K. Redman, 22 Park Road, Barnoldswick, Yorkshire.
- *2962 (1911). Waterproofing leather. E. N. Quirin, 119 Lo. Main street, Mansfield, Mass., and J. H. Rochester, New Hampshire—both in U. S. A.
- 2976 (1911). Rubber heels. T. Gare, 250 Bristol Road, Edgbaston, near Birmingham.
- 2998 (1911). Elastic tire bodies and cores. A. Ducasble, 30 Avenue de Neuilly, Neuilly-sur-Seine, France.
- 2999 (1911). Improvements in vehicle wheels. E. Bloch and R. Favard, 37 Rue de St. Petersburg, Paris.
- 3049 (1911). Extracting rubber from plants. R. Bridge, Castleton Ironworks, Castleton, Lancashire.
- 3050 (1911). Cutting up india-rubber tubes. R. Bridge, Castleton Ironworks, Castleton, Lancashire.
- 3085 (1911). Washers for tube joints. F. Wood, 62 Boston street, Hulme, Manchester.
- 3101 (1911). Washers for vehicle springs. J. R. Churchill, 22 Abbeyfield Road, Sheffield.
- 3133 (1911). Printing blankets. F. W. Adams, Glenleigh, Greys Road, Eastbourne.
- 3210 (1911). Tap stoppers. G. Koppenhagen, 9 Great Tower street, London.
- 3231 (1911). Feed rolls for envelope making machinery. W. E. Lake, 7 Southampton Buildings, London.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

- 435,759 (October 27, 1911). P. Wernicke. Process and appliance for filling molds for pressing plastic substances.
- 435,809 (January 7). H. Carroll. Process of rubber regeneration for industrial uses.
- 435,867 (October 31). H. A. B. Anthony. Improvements in pneumatic tires.
- 435,919 (November 3). L. Rustin. Antiskid device for wheels.
- 435,937 (November 4). A. Weber. Pneumatic tires.
- 435,997 (November 6). T. Mitchell. Improvements in pneumatic and other elastic tires.
- 435,981 (November 4). J. Mitchell. Improvements in soles and movable, interchangeable heels.
- 436,111 (January 14). C. Morel. Elastic tires for road vehicles.
- 436,217 (October 18). Savage Tire Co. Pneumatic tires.
- 436,296 (November 11). J. A. Meunier. Unpuncturable pneumatic wheel for vehicles.
- 436,376 (January 20). M. Siramy. Cover for pneumatic tire.
- 436,552 (November 18). H. Potaud. Improvements in elastic tires.
- 436,588 (November 21). Salzmann & Co. Rubber covers for automobile tires.
- 436,598 (November 21). De Laski & Trapp Circular Woven Tire Company. Appliance for adjusting pneumatic tires.
- 436,616 (November 21). G. Charvet. Wheel with elastic tire.
- 436,667 (November 22). J. Bernard. Pneumatic wheel.
- 436,694 (November 24). H. Magelssen. Process for manufacture of an elastic, acid-resisting, incombustible and impermeable substance.
- 436,823 (November 24). C. Ville. Machine for manufacture of pneumatic tires for automobiles.
- 436,978 (November 29). L. V. J. Rougeaux. Easily adjusted spare tire.
- 437,000 (November 30). R. H. Pybus and E. M. Pybus. Improvements in processes for manufacture of spongy elastic substances.
- 437,009 (February 6). H. Brionne. Protective cover for pneumatic tires.
- 437,153 (December 4). Gebrüder Haberer. Rubberized fabric made from bark fibre for balloons and flying machines.
- 437,172 (February 10). E. H. Fouard and C. Jovignet. New product, on a foundation of rubber resin, for the impermeabilization of porous walls and for application to those not of porous character.
- 437,275 (December 7). F. X. Guillaumon. Movable nail for antiskid appliances.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingénieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

- 247,528 (from December 25, 1910). Josef Marx, Königstein, Taunus. Leather covers for pneumatic tires.
- 247,961 (from September 27, 1911). Georg Wirth, Wien. Sprayer for inhalation purposes.
- 247,973 (from July 3, 1910). Morris Metallic Packing Co., Philadelphia. Piston rod packing.
- 248,027 (from January 19, 1911). Fritz Förstermann, Hamburg. Erasive rubber holder.

Review of the Crude Rubber Market.

THE London market during the last days of May was notably affected by the Whitsuntide holidays, which had caused the third May auction to be held on 21st instead of 28th. During the first ten days of June, business was remarkably quiet, the price for fine Pará of 4s. 7½d., with which May had closed being only fractionally improved, 4s. 8d. being reached on June 8. The relatively protracted abstention of consumers was then broken by active inquiry during the ensuing week; with the result that 4s. 11d. was attained on the 12th, this figure constituting the high-water mark of the month. Demand then gradually slackened, with the result that prices fell off during the later part of the month; the quotation on 25th (at time of writing) being 4s. 9d.

In explanation of these conditions, it is stated that consumers see a prospective advantage in holding off, except for the purpose of filling immediate requirements. On the other hand, an element of strength was afforded by reports to the effect that prominent rubber interests were buying extensively in the Brazilian markets, particularly at Mánãos.

After the putting forward of the third series of May auctions of plantation rubber, and the offering during that month of about 1,750 tons by public sale, the reduction of the total offered during the two sales of June to about 700 tons, constituted to the steadiness which developed itself on both occasions. Prices displayed only a slight variation from those of the larger auctions held during May. This reduction was in part due to the existing labor troubles impeding dock and warehouse work.

Business on the continent partook to a great extent of the character reported from London. The advance in fine Pará, which took place towards the middle of the month, was reported to be due to the effects of continental purchases. With the falling off in demand, prices again gave way.

Consumption is still the dominant factor in the situation. The heavy increase of Eastern plantation supplies has so far been absorbed by the market, but all connected with the industry are closely watching every new or increased use of rubber.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and June—the current date.

PARÁ.	July 1, '11.	June 1, '12.	June 29, '12.
Islands, fine, new.....	92@ 93	105@106	100@101
Islands, fine, old.....	94@ 95	107@108	.....
Upriver, fine, new.....	97@ 98	109@110	110@111
Upriver, fine, old.....	101@102	112@113	115@116
Islands, coarse, new.....	58@ 59	57@ 58	54@ 55
Islands, coarse, old.....	.....	.....	.....
Upriver, coarse, new.....	81@ 82	89@ 90	84@ 85
Upriver, coarse, old.....	83@ 84	.....	.....
Cametá.....	64@ 65	65@ 66	63@ 64
Caucho (Peruvian) ball.....	80@ 81	87@ 88	82@ 83
Caucho (Peruvian) sheet.....	62@ 63	.....	.....

PLANTATION PARÁ.

Fine smoked sheet.....	114@115	118@119	118@119
Fine pale crepe.....	113@114	119@120	117@118
Fine sheets and biscuits.....	110@111	114@115	113@114

CENTRALS.

Esmeralda, sausage.....	77@ 78	82@ 83	82@ 83
Guayaquil, strip.....	.....	.....	.....
Nicaragua, scrap.....	77@ 78	80@ 81	80@ 81
Panama.....	.....	.....	.....
Mexican, plantation, sheet.....	.....	.....	90@ 95
Mexican, scrap.....	75@ 76	81@ 82	80@ 81
Mexican, slab.....	.....	.....	.....
Mangabeira, sheet.....	.....	.....	.....

Guayule.....	43@ 44	55@ 56	55@ 56
Balata, sheet.....	.....	89@ 90	85@ 86
Balata, block.....	.....	55@ 56	53@ 54

AFRICAN.

Lopori ball, prime.....	92@ 93	.....	.....
Lopori, strip, prime.....	.....	.....	.....
Aruwimi.....	87@ 88	.....	.....
Upper Congo, ball, red.....	89@ 90	107@108	.....
Ikelemba.....	.....	.....	.....
Sierra Leone, 1st quality.....	84@ 85	94@ 95	94@ 95
Massai, red.....	84@ 85	95@ 96	95@ 96
Soudan, Niggers.....	.....	.....	.....
Cameroon, ball.....	58@ 59	66@ 67	65@ 66
Benguela.....	64@ 65	.....	.....
Madagascar, pinky.....	75@ 76	.....	85@ 86
Accra, flake.....	25@ 26	27@ 28	27@ 28

EAST INDIAN.

Assam.....	78@ 79	.....	.....
Pontianak.....	6½@6¼	5½@5¼	5½@ 6
Borneo.....	.....	.....	.....

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine.....	4\$100	Upriver, fine.....	5\$750
Islands, coarse.....	2\$100	Upriver, coarse.....	4\$250
		Exchange.....	16 7/32d.

Latest Manãos advices:

Upriver, fine.....	5\$700	Exchange.....	16½d.
Upriver, coarse.....	3\$900		

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows:

"The market for commercial paper has continued easy through June, with a fairly good demand from city and out-of-town banks for the best rubber names at 4@4½ per cent., and those not so well known 5@5½ per cent., and some 5¾ per cent."

NEW YORK PRICES FOR MAY (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine.....	\$1.09@1.12	\$0.93@1.28	\$2.35@2.80
Upriver, coarse.....	.89@ .92	.82@ .89	1.60@1.82
Islands, fine.....	1.05@1.10	.92@1.22	2.26@2.72
Islands, coarse.....	.58@ .63	.58@ .67	.93@1.09
Cametá.....	.65@ .67	.67@ .76	1.10@1.27

African Rubbers.

NEW YORK STOCKS (IN TONS).

May 1, 1911.....	98	December 1, 1911.....	60
June 1.....	90	January 1, 1912.....	58
July 1.....	90	February 1.....	150
August 1.....	90	March 1.....	90
September 1.....	112	April 1.....	80
October 1.....	67	May 1.....	62
November 1.....	45	June 1.....	94

Amsterdam.

Joostens & Janssen report [June 6, 1912]:

Interest is expressed in the fact that the quantity announced for sale on 21st inst. will be about 47¾ tons in all, as compared with about 18 tons offered at the May sales. The assortment is as follows: 37 tons *Hevea*; 7¼ tons *Ficus*; 2 tons *Castilloa*; 1 ton *Sumatra*; ½ ton *Guatemala*.

PARA ARRIVALS.

While during the last five years, rubber prices have witnessed remarkable fluctuations, and the considerably augmented production of plantation rubber has altered the conditions of supply, arrivals at Pará have kept at a relatively steady level. As will be seen by the annexed table the figures for the years ending June 30, 1907-08 to 1910-11 were, respectively, 36,650, 38,065, 39,165 and 37,530 tons; the yearly average being thus 37,852 tons. The total for the year 1911-1912 just closed has been 38,530 tons, or about two per cent. above the average for the preceding four years.

Apportioning the years' receipts into quarters the following results will be found:

	Tons.
July 1 to September 30, 1911.....	5,630
October 1 to December 31, 1911.....	10,370
January 1 to March 31, 1912.....	14,110
April 1 to June 28, 1912.....	8,420
Total	38,530

The largest proportion was thus as usual in the first three months of the calendar year.

From the figures quoted it will be seen that Brazil, instead of diminishing its production of rubber, as has been asserted to be the case, has fully maintained it, even registering a slight increase.

	1907-08.	1908-09.	1909-10.	1910-11.	1911-12.
July.....tons	1,370	1,300	1,400	2,340	1,410
August.....	1,500	1,890	1,870	1,870	1,590
September.....	2,410	2,355	2,020	1,980	2,630
October.....	3,200	3,460	3,275	3,170	2,990
November.....	3,200	3,430	4,640	3,790	3,550
December.....	2,560	3,300	3,510	2,640	3,830
January.....	4,860	5,480	5,490	4,130	4,860
February.....	5,340	5,040	4,760	5,795	4,850
March.....	4,240	4,140	5,210	3,540	4,400
April.....	3,100	3,760	3,600	3,490	3,080
May.....	3,210	2,340	2,170	3,060	3,030
June.....	1,660	1,570	1,220	1,725	2,310
Total.....	36,650	38,065	39,165	37,530	38,530

[a To and including June 25, 1912.]

Aggregate figures covering 12 years show an increase during that time of more than 40 per cent.				
1900-01.....tons	27,610	1906-07.....tons	38,005	
1901-02.....	30,000	1907-08.....	36,650	
1902-03.....	29,850	1908-09.....	38,065	
1903-04.....	36,580	1909-10.....	39,165	
1904-05.....	33,060	1910-11.....	37,530	
1905-1906.....	34,490	1911-12.....	38,530	

[a To and including June 25, 1912.]

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

July 7, 1911.....	4/2½	January 5, 1912.....	4/4½
July 14.....	4/5½	January 12.....	4/5½
July 21.....	4/7	January 19.....	4/5½
July 28.....	4/8	January 26.....	4/8
August 4.....	4/7½	February 2.....	4/7
August 11.....	4/7½	February 9.....	4/6½
August 18.....	4/7½	February 16.....	4/6½
August 25.....	4/10½	February 23.....	4/7½
September 1.....	4/8½	March 1.....	4/7½
September 8.....	4/9	March 8.....	4/9
September 15.....	5/	March 15.....	4/10½
September 22.....	4/10½	March 22.....	5/1½
September 29.....	4/8	March 29.....	4/11½
October 6.....	4/7	April 5.....	4/11
October 13.....	4/5	April 12.....	4/11
October 20.....	4/6½	April 19.....	4/10½
October 27.....	4/4	April 25.....	4/9
November 3.....	4/3	May 3.....	4/7½
November 10.....	4/4½	May 10.....	4/7½
November 17.....	4/3	May 17.....	4/7½
November 24.....	4/3½	May 24.....	4/7½
December 1.....	4/4½	May 31.....	4/7½
December 8.....	4/5½	June 7.....	4/8½
December 15.....	4/4½	June 14.....	4/10
December 22.....	4/4	June 21.....	4/9½
December 29.....	4/3½		

Liverpool.

WILLIAM WRIGHT & Co. report [June 1]:

Fine Pará.—Demand throughout the month has been dull, but prices have remained very steady, the principal operators acting cautiously; therefore any general resumption of trade inquiry would mean an increase in values. It must be remembered that we are now in the months of small receipts, especially for hard cure, and that as a rule the American demand for autumn trade requirements begins to materialize in July, and it is an undoubted fact that there is very little "free rubber" offering. Supplies of plantation will doubtless be plentiful, but this will all be waited either for direct orders or on orders to cover. Closing value: (1. p. v. t. b. n. e. 4s. 7½d. [\$1.125]; Island, 4s. 5½d. [\$1.08]).

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.			Total.		
	Fine and Medium.	Coarse.		1912.	1911.	1910.
Stocks, April 30.....tons	277	36	=	313	561	143
Arrivals, May.....	724	438	=	1,162	909	332
Aggregating	1,001	474	=	1,475	1,470	475
Deliveries, May.....	838	456	=	1,294	1,119	369
Stocks, May 31.....	163	18	=	181	351	106
	1912.	1911.	1910.	1912.	1911.	1910.
	Pará.			England.		
Stocks, April 30.....tons	2,770	4,160	260	990	1,470	1,100
Arrivals, May.....	2,410	2,010	1,340	580	817	1,308
Aggregating	5,180	6,170	1,600	1,570	2,287	2,408
Deliveries, May.....	2,185	1,965	925	840	362	858
Stocks, May 31....	2,995	4,205	675	730	1,925	1,550
	1912.	1911.	1910.	1912.	1911.	1910.
World's visible supply, May 31.....tons	5,025	7,408	2,871			
Pará receipts, July 1 to May 31.....	30,380	29,200	30,570			
Pará receipts of caucho, same dates.....	6,650	6,800	7,380			
Afloat from Pará to United States, May 31	549	347	60			
Afloat from Pará to Europe, May 31.....	570	580	480			

Rubber Stock at Para.

Stock for January 31 showed an increase caused by heavier arrivals, while that of February 29 shows a slight decrease. The stock of March 31 displayed a further reduction, while that of April 30 was about the same as a month earlier. On May 31 the stock had again increased.

January 31, 1911.....tons	2,085	September 30, 1911.....tons	3,102
February 28.....	3,787	October 31.....	3,320
March 31.....	4,214	November 30.....	3,050
April 30.....	5,104	December 31.....	2,675
May 31.....	5,350	January 31, 1912.....	3,370
June 30.....	4,545	February 29.....	3,240
July 31.....	3,884	March 31.....	2,730
August 31.....	3,450	April 30.....	2,770
		May 31.....	2,995

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

JUNE 3.—By the steamer *Aidan*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss	141,900	42,200	168,700	132,500	485,300
Henderson & Korn	102,100	17,900	64,300	62,000	246,300
General Rubber Co.....	113,500	34,200	74,600	11,800	234,100
New York Commercial Co.....	78,000	23,200	41,000	10,600	152,800
Robinson & Co.....	48,600	7,500	41,500	26,400	124,000
Meyer & Brown	15,700	.....	.....	104,900	120,600
De Lagotellerie & Co.....	14,300	3,200	37,000	.....	54,500
Total	514,100	128,200	427,100	348,200	1,417,600

JUNE 10.—By the steamer *Goyaz*, from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss	11,800	1,100	34,300	.....	47,200
New York Commercial Co.....	4,500	1,600	16,200	20,500	42,800
General Rubber Co.....	6,700	1,900	20,300	6,900	35,800
Meyer & Brown .....	.....	.....	.....	39,200	39,200
De Lagotellerie & Co.....	2,100	700	23,800	.....	26,600
G. Amsinck & Co.....	3,100	800	700	.....	4,600
Robinson & Co.....	.....	.....	4,000	.....	4,000
Total	28,200	6,100	99,300	66,600	200,200

JUNE 15.—By the steamer *Ucayali*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Arnold & Zeiss	163,200	33,700	124,900	62,700	384,500
New York Commercial Co.....	95,600	47,800	69,700	6,400	219,500
Henderson & Korn	31,300	5,600	21,800	10,300	69,000
Meyer & Brown .....	.....	.....	.....	52,500	52,500
Robinson & Co.....	21,800	.....	16,100	.....	37,900
General Rubber Co.....	22,800	500	6,200	2,500	32,000
Hagemeyer & Brunn	15,700	1,900	2,100	.....	19,700
Thomsen & Co.....	.....	.....	.....	7,800	7,800
Total	250,400	89,500	240,800	142,200	822,900

JUNE 21.—By the steamer *Crispin*, from Manáos and Pará:

Arnold & Zeiss	102,800	24,700	104,500	72,600	=	304,700
New York Commercial Co.	28,200	19,700	47,900	4,000	=	82,500
Robinson & Co.	44,800	12,200	57,000		=	69,500
Held & Co.	12,000	2,800	14,800		=	50,000
G. Amsinck & Co.			12,000		=	12,000
Ed. Maurer			7,400		=	7,400
Henderson & Korn			7,900		=	7,900
Meyer & Brown			3,300		=	3,300
Total	201,000	59,400	260,300	76,600	=	537,300

JUNE 24.—By the steamer *Clement*, from Manáos and Pará:

New York Commercial Co.	34,900	16,600	51,500	25,000	=	119,200
Arnold & Zeiss	35,700	11,500	47,200	4,500	=	138,100
Meyer & Brown			13,800	24,200	=	38,000
De Lagotellerie & Co.	12,100	1,400	13,500		=	34,000
General Rubber Co.	24,100	700	24,800		=	30,600
Robinson & Co.	200	1,100	1,300	6,000	=	14,500
Henderson & Korn	4,700	300	5,000		=	7,600
G. Amsinck & Co.	1,100		5,900		=	7,000
Total	112,800	31,600	144,400	59,700	=	389,000

PARA RUBBER VIA EUROPE.

MAY 3.—By the <i>Livonia</i> =Liverpool:		
Raw Products Co. (Fine).....	11,500	
Raw Products Co. (Coarse).....	33,500	45,000
MAY 7.—By the <i>Kaiserin Augusta Victoria</i> =Hamburg:		
Robert Badenhop (Fine).....	9,000	
Ed. Maurer (Fine).....	3,500	12,500
MAY 31.—By the <i>Caracas</i> =Liverpool:		
New York Commercial Co. (Fine).....	80,000	
JUNE 3.—By the <i>Panama</i> =Mollendo:		
N. Y. Commercial Co. (Fine).....	2,000	
F. Rosenstern & Co. (Fine).....	3,000	5,000
JUNE 3.—By the <i>Campania</i> =Liverpool:		
Robinson & Co. (Fine).....	45,000	
JUNE 7.—By the <i>Mauretania</i> =Liverpool:		
General Rubber Co. (Fine).....	45,000	
Raw Products Co. (Fine).....	22,500	67,500
JUNE 8.—By the <i>Pretoria</i> =Hamburg:		
Raw Products Co. (Coarse).....	11,000	
JUNE 11.—By the <i>Saramacca</i> =Bolívar:		
Gen. Export Com. Co. (Fine).....	115,000	
Gen. Export Com. Co. (Coarse).....	37,000	152,000
JUNE 17.—By the <i>Elta</i> =Liverpool:		
Wallace L. Gough Co. (Fine).....	11,500	
JUNE 22.—By the <i>Maracas</i> =Bolívar:		
Yglesias Lobo & Co. (Fine).....	2,000	
Yglesias Lobo & Co. (Coarse).....	3,500	5,500
JUNE 24.—By the <i>Campania</i> =Liverpool:		
Henderson & Korn.....	11,500	
Robinson & Co. (Coarse).....	11,500	
Raw Products Co. (Coarse).....	3,500	26,500

OTHER NEW YORK ARRIVALS.
CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]		
MAY 23.—By the <i>Orotara</i> =Colombia:		
G. Amsinck & Co.....	9,000	
A. M. Capen's Sons.....	8,000	
Mecke & Co.....	6,000	
E. Nelson Tibbals & Co.....	6,000	
J. Sambrada Co.....	1,500	
Chas. E. Griffin.....	1,000	
Schlutte Bunemann & Co.....	1,000	
For Antwerp.....	11,000	43,500
MAY 23.—By the <i>Momus</i> =New Orleans:		
A. N. Rotholz.....	6,500	
Robinson & Co.....	2,500	
Eggers & Heinlein.....	2,500	
Charles T. Wilson.....	2,000	
Scholz & Marturet.....	1,000	14,500
MAY 24.—By the <i>Indian Prince</i> =Bahia:		
A. Hirsch & Co.....	90,000	
J. H. Rossback Bros.....	35,000	
A. D. Hitch & Co.....	20,000	145,000
MAY 27.—By the <i>Kaiserin Augusta Victoria</i> =Hamburg:		
Arnold & Zeiss.....	7,000	
MAY 27.—By the <i>Camaguey</i> =Tampico:		
New York Commercial Co.....	*110,000	
Ed. Maurer.....	*100,000	
Arnold & Zeiss.....	*40,000	
For Hamburg.....	*50,000	*300,000
MAY 27.—By the <i>Mexico</i> =Frontera:		
E. Steiger & Co.....	5,000	
Laurence Johnson & Co.....	5,000	
Strube & Utze.....	3,500	
New York Commercial Co.....	3,500	
Harburger & Stack.....	2,000	
General Export Commercial Co.....	2,000	
Herman Kluge.....	1,000	
Meyer & Brown.....	1,000	
Graham Hinkley Co.....	1,000	24,000
MAY 28.—By the <i>Advance</i> =Colon:		
G. Amsinck & Co.....	7,500	
Andean Trading Co.....	4,000	
Dumarest Bros. & Co.....	2,000	
Caballero & Blanco.....	1,500	
Schlutte Bunemann & Co.....	1,500	
Laurence Johnson & Co.....	1,000	
Landman & Kemp.....	1,000	18,500
MAY 31.—By the <i>Prinz Joachim</i> =Colon:		
G. Amsinck & Co.....	10,000	
Brandon & Bros.....	2,000	
J. J. Julia & Co.....	1,500	
J. Sambrada Co.....	1,500	
Mecke & Co.....	1,500	
L. Schupp Co.....	1,000	
L. Johnson & Co.....	1,000	18,500

JUNE 1.—By the <i>Almirante</i> =Colombia:		
Maitland, Coppell & Co.....	4,500	
Isaac Brandon & Bros.....	2,000	
R. del Castello & Co.....	1,500	
For Antwerp.....	3,000	11,000
JUNE 3.—By the <i>Esperanza</i> =Frontera:		
Harburger & Stack.....	4,000	
E. Steiger & Co.....	3,500	
Hawes Willard & Co.....	2,500	
Meyer & Brown.....	2,000	
New York Commercial Co.....	1,500	
Herman Kluge.....	1,000	
H. W. Peabody & Co.....	1,000	15,500
JUNE 3.—By the <i>El Oneta</i> =Galveston:		
Chas. T. Wilson.....	*25,000	
JUNE 3.—By the <i>Amsterdam</i> =Rotterdam:		
A. Hirsch & Co.....	34,000	
JUNE 4.—By the <i>Matanzas</i> =Tampico:		
Ed. Maurer.....	*225,000	
Arnold & Zeiss.....	*55,000	
New York Commercial Co.....	*34,000	
H. Marquardt & Co.....	*10,000	
For Hamburg.....	*50,000	*374,000
JUNE 5.—By the <i>Thames</i> =Colombia:		
G. Amsinck & Co.....	11,000	
A. Helde.....	9,000	
A. M. Capen & Sons.....	7,000	
J. Sambrada Co.....	5,000	
Brandon & Bros.....	2,000	
E. N. Tibbals Co.....	2,000	
Neuss Hesslein Co.....	1,500	
Chas. E. Griffen.....	1,000	38,500
JUNE 5.—By the <i>Antilles</i> =New Orleans:		
Eggers & Heinlein.....	4,000	
Wessels Kulenkampf & Co.....	2,000	
Unknown.....	10,000	16,000
JUNE 7.—By the <i>Santa Martha</i> =Colon:		
G. Amsinck & Co.....	5,000	
Pablo Calvet Co.....	1,500	
R. del Castello Co.....	1,000	7,500
JUNE 8.—By the <i>Voltaire</i> =Bahia:		
A. Hirsch Co.....	8,000	
JUNE 8.—By the <i>Pretoria</i> =Hamburg:		
Arnold & Zeiss.....	5,500	
JUNE 10.—By the <i>Alhambra</i> =Colon:		
G. Amsinck & Co.....	18,000	
Piza Nephews Co.....	3,000	
Brandon & Bros.....	3,000	
Wessels Kulenkampf Co.....	1,500	
R. G. Barthold.....	1,500	
Mecke & Co.....	1,000	
Landman & Kemp.....	1,000	
Pablo Calvet Co.....	1,000	30,000
JUNE 12.—By the <i>Prinz August Wilhelm</i> =Colon:		
G. Amsinck & Co.....	9,000	
A. Rosenthal's Sons.....	4,500	
A. Helde.....	3,500	
Manhattan Rubber Mfg. Co.....	3,000	
P. Tremano Co.....	1,500	
Pablo Calvet Co.....	1,500	
Isaac Brandon & Bros.....	1,000	24,000
JUNE 12.—By the <i>El Siglo</i> =Galveston:		
Continental-Mexican Rub. Co.....	*130,000	
Charles T. Wilson.....	*10,000	140,000
JUNE 13.—By the <i>Santiago</i> =Tampico:		
New York Commercial Co.....	*70,000	
J. W. Wilson & Co.....	*50,000	
Ed. Maurer.....	*45,000	*165,000
JUNE 15.—By the <i>Colon</i> =Colon:		
G. Amsinck & Co.....	7,000	
Hirzel, Feltman & Co.....	3,000	
Mecke & Co.....	2,000	
J. Sambrada Co.....	2,000	
Meyer Hecht.....	1,000	
Gillespie Bros. & Co.....	1,000	16,000
JUNE 17.—By the <i>New York</i> =London:		
Charles T. Wilson.....	*11,000	*11,000
JUNE 18.—By the <i>Monterey</i> =Frontera:		
J. W. Wilson & Co.....	6,000	
E. Steiger & Co.....	5,500	
Harburger & Stack.....	5,000	
Meyer & Brown.....	1,000	
In transit.....	6,000	23,500
JUNE 19.—By the <i>Prinz Sigismund</i> =Colon:		
Wessels Kulenkampf & Co.....	2,500	
Manhattan Rubber Mfg. Co.....	2,000	
G. Amsinck & Co.....	1,000	
Isaac Brandon & Bros.....	1,000	6,500
JUNE 20.—By the <i>Titian</i> =Bahia:		
G. Amsinck & Co.....	9,000	

JUNE 20.—By the <i>President Grant</i> =Hamburg:		
Ed. Maurer.....	22,500	
JUNE 20.—By the <i>Bayanco</i> =Tampico:		
New York Commercial Co.....	*135,000	
Ed. Maurer.....	*55,000	
J. W. Wilson & Co.....	*40,000	
H. Marquardt Co.....	*22,000	*252,000
JUNE 20.—By the <i>Trent</i> =Colombia:		
A. M. Capen's Sons.....	3,500	
J. Sambrada Co.....	1,000	
Isaac Brandon & Bros.....	1,000	5,500
JUNE 20.—By the <i>Creole</i> =New Orleans:		
Manhattan Rubber Mfg. Co.....	5,000	
A. N. Rotholz.....	1,500	6,500
JUNE 21.—By the <i>El Monte</i> =Galveston:		
Continental & Mexican Co.....	*125,000	
Charles T. Wilson.....	*11,000	*136,000
JUNE 24.—By the <i>Advance</i> =Colon:		
G. Amsinck & Co.....	4,500	
Dumarest Bros. Co.....	3,000	
Pablo Calvet & Co.....	2,000	
F. Rosenstern & Co.....	1,500	
Roldau & Van Sickle.....	1,000	12,000
JUNE 24.—By the <i>Camaguey</i> =Tampico:		
Ed. Maurer.....	*165,000	
H. Marquardt & Co.....	*11,000	
For Europe.....	*35,000	*211,000
JUNE 24.—By the <i>Albrigia</i> =Colombia:		
Maitland, Coppell & Co.....	13,500	
Caballero & Blanco.....	1,000	14,500
JUNE 24.—By the <i>Mexico</i> =Vera Cruz:		
G. Amsinck & Co.....	4,500	
H. Marquardt & Co.....	3,500	
American Trading Co.....	3,000	
Harburger & Stack.....	2,000	13,000
JUNE 24.—By the <i>Byron</i> =Bahia:		
Adolph Hirsch & Co.....	10,000	
A. D. Hitch.....	9,000	19,000
JUNE 25.—By the <i>Prinz Joachim</i> =Colon:		
G. Amsinck & Co.....	5,000	
J. Sambrada Co.....	1,000	
Gillespie Bros. Co.....	1,000	
Isaac Brandon & Bros.....	1,000	8,500

EAST INDIAN.

(*Denotes plantation rubber.)

MAY 23.—By the <i>Mesaba</i> =London:		
General Rubber Co.....	*125,000	
Raw Products Co.....	*35,000	
Ed. Maurer.....	*35,000	
Charles T. Wilson.....	*25,000	
Arnold & Zeiss.....	*25,000	
Rubber Trading Co.....	*7,000	
Robert Badenhop.....	*9,000	
Charles T. Wilson.....	22,000	283,000
MAY 27.—By the <i>St. Paul</i> =London:		
New York Commercial Co.....	*50,000	
Arnold & Zeiss.....	*34,000	
Meyer & Brown.....	*5,000	
In transit.....	*7,000	
Arnold & Zeiss.....	9,000	105,000
MAY 28.—By the <i>Minnetonka</i> =London:		
General Rubber Co.....	*90,000	
Charles T. Wilson.....	*15,000	
Raw Products Co.....	*9,000	
General Rubber Co.....	22,500	
Charles T. Wilson.....	11,500	148,000
MAY 28.—By the <i>Jeserie</i> =Singapore:		
L. Littlejohn & Co.....	*50,000	
Ed. Maurer.....	*40,000	
E. Bonstead Co.....	*40,000	
Otto Isenstein Co.....	*28,000	
Haebler & Co.....	*15,000	
New York Commercial Co.....	*7,000	
A. W. Brunn.....	*6,000	
Ed. Maurer.....	25,000	
United Malayean Rubber Co.....	22,500	
Haebler & Co.....	18,000	
Arnold & Zeiss.....	5,500	257,000
MAY 28.—By the <i>Saldanha</i> =Colombo:		
Meyer & Brown.....	*38,000	
MAY 29.—By the <i>Zeeland</i> =Antwerp:		
Meyer & Brown.....	*65,000	
MAY 29.—By the <i>Indrasania</i> =Singapore:		
Ed. Maurer.....	*6,000	
L. Littlejohn & Co.....	*11,000	
Wallace L. Gough Co.....	*30,000	
Ed. Maurer.....	70,000	
United Malayean Rubber Co.....	18,000	108,000

MAY 31.—By the *Majestic*=London:
 Arnold & Zeiss.....*200,000
 W. H. Stiles.....*15,000
 New York Commercial Co.....*15,500
 Ed. Maurer.....*13,500
 Rubber Trading Co.....*5,000 *249,000

JUNE 3.—By the *Philadelphia*=London:
 New York Commercial Co.....*56,000
 Arnold & Zeiss.....*45,000
 Ed. Maurer.....*34,000
 Meyer & Brown.....*9,000
 In transit.....*65,000 *209,000

JUNE 4.—By the *Minneapolis*=London:
 Raw Products Co.....*9,000
 Charles T. Wilson.....*9,000
 Ed. Maurer.....*7,000 *25,000

JUNE 4.—By the *Vaderland*=Antwerp:
 Meyer & Brown.....*45,000
 W. H. Stiles.....*7,000 *52,000

JUNE 6.—By the *Oceanic*=London:
 Rubber Trading Co.....*9,000
 Arnold & Zeiss.....*7,000
 L. Blitz.....*4,500
 W. H. Stiles.....*4,500 *25,000

JUNE 10.—By the *St. Louis*=London:
 Arnold & Zeiss.....*35,000
 Ed. Maurer.....*15,000
 Meyer & Brown.....*13,500
 Wallace L. Gough Co.....*8,000
 Charles T. Wilson.....*5,500
 W. H. Stiles.....*5,000 *82,000

JUNE 10.—By the *Kalamo*=Singapore:
 L. Littlejohn & Co.....*15,000
 Ed. Maurer.....*13,500
 Otto Isenstein Co.....*7,000
 Wallace L. Gough Co.....*5,000
 Haebler & Co.....*5,000
 New York Commercial Co.....*3,000 *48,500

JUNE 11.—By the *Lapland*=Antwerp:
 Meyer & Brown.....*50,000

JUNE 12.—By the *Rabenfels*=Colombo:
 Meyer & Brown.....*93,000
 New York Commercial Co.....*15,500
 Ed. Maurer.....*7,000
 L. Blitz.....*7,000
 Robert Badenhop.....*4,500
 H. W. Peabody Co.....*4,500 *131,500

JUNE 12.—By the *Olympic*=London:
 New York Commercial Co.....*56,000
 James T. Johnstone.....*13,500
 Ed. Maurer.....*9,000
 Arnold & Zeiss.....*8,000
 In transit.....*55,000 *142,500

JUNE 14.—By the *Prince Burmese*=Singapore:
 Ed. Maurer.....*17,000
 Haebler & Co.....*7,000 24,000

JUNE 17.—By the *New York*=London:
 New York Commercial Co.....*85,000
 Ed. Maurer.....*45,000
 Arnold & Zeiss.....*13,500
 Meyer & Brown.....*12,500
 Charles T. Wilson.....*9,000
 W. H. Stiles.....*9,000
 Robinson & Co.....*5,000
 James T. Johnstone.....*4,000
 In transit.....*22,500 *205,500

JUNE 22.—By the *Montrose*=Singapore:
 Otto Isenstein & Co.....*30,000
 Ed. Maurer.....*25,000
 Wallace L. Gough Co.....*8,000
 L. Littlejohn & Co.....*5,000
 A. W. Brown.....*5,000
 New York Commercial Co.....*5,000
 Ed. Maurer.....*20,000
 Arnold & Zeiss.....*17,000
 Haebler & Co.....*11,000
 L. Littlejohn & Co.....*3,500 129,500

JUNE 22.—By the *Kasamba*=Colombo:
 Meyer & Brown.....*45,000
 New York Commercial Co.....*4,500 *49,500

JUNE 24.—By the *Campania*=Liverpool:
 General Rubber Co.....*22,500

AFRICAN.

MAY 27.—By the *Kaiserin Augusta Victoria*=Hamburg:
 Ed. Maurer.....34,000
 George A. Alden Co.....25,000
 Meyer & Brown.....22,500
 R. Badenhop.....4,500 86,000

MAY 29.—By the *Hudson*=Bordeaux:
 Arnold & Zeiss.....7,000
 Meyer & Brown.....5,500
 Ed. Maurer.....4,500 17,000

MAY 31.—By the *Caronia*=Liverpool:
 Rubber Trading Co.....11,500
 Ed. Maurer.....9,000
 George A. Alden Co.....7,000
 W. L. Gough Co.....4,500
 J. T. Johnstone.....3,500 35,500

MAY 31.—By the *President Lincoln*=Hamburg:
 General Rubber Co.....22,500
 Rubber Trading Co.....5,500
 Arnold & Zeiss.....5,000 33,000

JUNE 1.—By the *Provincia*=Lisbon:
 Ed. Maurer.....22,500
 W. L. Gough Co.....11,500 34,000

JUNE 3.—By the *Campania*=Liverpool:
 Arnold & Zeiss.....11,500
 General Rubber Co.....7,000
 Henderson & Korn.....5,000 23,500

JUNE 4.—By the *Chicago*=Havre:
 Raw Products Co.....9,000

JUNE 4.—By the *Vaderland*=Antwerp:
 W. L. Gough Co.....20,000
 Arnold & Zeiss.....15,000 35,000

JUNE 8.—By the *Pretoria*=Hamburg:
 Henderson & Korn.....45,000
 Ed. Maurer.....35,000
 George A. Alden & Co.....15,000
 Meyer & Brown.....10,000
 Rubber Trading Co.....9,000
 Raw Products Co.....6,000
 W. L. Gough Co.....3,500
 R. Badenhop.....2,500 126,000

JUNE 17.—By the *New York*=London:
 Ed. Maurer.....11,500
 General Rubber Co.....2,500
 George A. Alden Co.....3,500 17,500

JUNE 17.—By the *Florida*=Havre:
 Meyer & Brown.....100,000
 Arnold & Zeiss.....70,000 170,000

JUNE 18.—By the *Kroonland*=Antwerp:
 Rubber Trading Co.....5,500

JUNE 20.—By the *President Grant*=Hamburg:
 Ed. Maurer.....45,000
 Meyer & Brown.....33,500
 George A. Alden & Co.....15,000
 Henderson & Korn.....17,000
 Rubber Trading Co.....13,500
 W. L. Gough Co.....8,000
 Robert Badenhop.....5,500
 General Rubber Co.....4,500 142,000

JUNE 24.—By the *Campania*=Liverpool:
 Arnold & Zeiss.....11,500
 James T. Johnstone.....4,500
 General Rubber Co.....5,500 21,500

JUNE 25.—By the *Vidago*=Lisbon:
 George A. Alden & Co.....11,000

JUNE 10.—By the *St. Louis*=Havre:
 General Rubber Co.....8,000
 Ed. Maurer.....4,500 12,500

JUNE 10.—By the *Riogana*=Lisbon:
 General Rubber Co.....67,000
 George A. Alden Co.....11,000 78,000

JUNE 10.—By the *Amerika*=Hamburg:
 Rubber Trading Co.....11,500
 Robert Badenhop.....2,000 13,500

JUNE 10.—By the *Finland*=Antwerp:
 Rubber Trading Co.....13,500

JUNE 12.—By the *Cleveland*=Hamburg:
 Meyer & Brown.....27,000
 General Rubber Co.....16,000
 Ed. Maurer.....10,000
 Rubber Trading Co.....7,000
 W. L. Gough Co.....6,500
 Robert Badenhop.....5,500 72,000

JUNE 15.—By the *Roma*=Lisbon:
 Ed. Maurer.....11,000

GUTTA-JELUTONG.

MAY 27.—By the *Jeseric*=Singapore:
 L. Littlejohn & Co.....600,000
 Haebler & Co.....250,000
 George A. Alden & Co.....250,000
 Wallace L. Gough Co.....200,000
 Arnold & Zeiss.....150,000
 W. R. Russell & Co.....150,000
 Winter & Smillie.....155,000 1,755,000

MAY 29.—By the *Indrasamha*=Singapore:
 L. Littlejohn & Co.....525,000
 George Alden & Co.....250,000
 Wallace L. Gough Co.....200,000
 W. R. Russell & Co.....225,000 1,200,000

JUNE 10.—By the *Kalamo*=Singapore:
 Wallace L. Gough Co.....34,000

JUNE 14.—By the *Prince Burmese*=Singapore:
 Haebler & Co.....225,000
 L. Littlejohn & Co.....225,000
 Wallace L. Gough Co.....80,000
 Arnold & Zeiss.....55,000 585,000

JUNE 22.—By the *Montrose*=Singapore:
 L. Littlejohn & Co.....425,000
 Haebler & Co.....175,000
 Wallace L. Gough Co.....110,000
 Arnold & Zeiss.....55,000 765,000

GUTTA-PERCHA.

MAY 22.—By the *Rotterdam*=Rotterdam:
 L. Littlejohn & Co.....34,000

MAY 27.—By the *Kaiserin Augusta Victoria*=Hamburg:
 Robert Soltau & Co.....7,000

MAY 27.—By the *Jeseric*=Singapore:
 L. Littlejohn & Co.....40,000
 Haebler & Co.....34,000 74,000

JUNE 20.—By the *President Grant*=Hamburg:
 Robert Soltau & Co.....8,000

BALATA.

JUNE 10.—By the *Mayaro*=Trinidad:
 Yglesias Lobo & Co.....4,500
 Suzarte & Whitney.....1,500
 George A. Alden & Co.....1,000 7,000

JUNE 17.—By the *New York*=London:
 In transit.....7,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—MAY, 1912.

Imports:	Pounds.	Value.
India-rubber	9,548,645	\$8,764,497
Balata	48,829	28,594
Guayule	801,182	378,708
Gutta-percha	135,743	20,956
Gutta-jelutong (Pontianak)	5,498,042	234,094
Total	16,032,441	\$9,426,849
Exports:		
India-rubber	117,400	\$102,413
Balata	12,000	7,600
Guayule	7,661	3,064
Gutta-percha .....	.....	.....
Reclaimed rubber	55,280	16,042
Rubber scrap, imported	2,761,814	\$237,508
Rubber scrap, exported	354,002	47,029

EXPORTS OF INDIA-RUBBER FROM PARA FOR MAY, 1912 (IN KILOGRAMS).

EXPORTERS.	NEW YORK.					EUROPE.				
	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Zarges, Berringer & Co.....	70,824	23,627	210,691	188,859	494,001	101,674	16,356	14,334	135,520	629,521
Ad. H. Alden, Ltd.....	37,661	5,867	52,745	30,546	126,819	101,700	14,302	44,195	192,968	319,787
R. O. Ahlers & Co.....	88,153	9,218	41,318	38,817	177,506	62,324	1,020	15,749	88,053	265,559
General Rubber Co. of Brazil.....	44,278	7,519	48,433	62,241	162,471	34,640	3,896	22,104	61,884	224,355
Suarez Hermanos & Co., Ltd.....	.....	.....	.....	.....	125,173	5,223	39,346	38,367	208,109	208,109
De Lagotellerie & Co.....	14,450	2,550	49,170	.....	66,170	.....	.....	.....	5,780	71,950
Pires Teixeira & Co.....	10,030	1,020	5,280	.....	16,330	.....	.....	.....	1,190	17,520
M. Ulmann & Co.....	.....	.....	.....	.....	.....	.....	4,347	4,200	16,660	16,660
Sundries	5,892	794	2,973	2,120	11,779	98	634	650	2,605	14,384
Itacoatiara, direct .....	.....	.....	.....	.....	3,110	.....	2,640	270	6,020	6,020
	271,288	50,595	410,610	322,583	1,055,076	443,863	41,959	99,887	718,789	1,773,865
Manãos, direct	365,835	92,064	165,271	163,765	786,935	155,632	26,386	45,959	417,817	1,204,752
Iquitos, direct	17,925	1,103	5,454	30,920	55,402	.....	.....	.....	.....	55,402
Total, May, 1912.....	655,048	143,762	581,335	517,268	1,897,413	599,495	68,345	145,846	322,920	3,034,019
Total, April, 1912.....	474,382	129,065	485,836	251,520	1,340,803	799,421	107,782	206,565	624,621	1,738,389
Total, March, 1912.....	928,549	268,394	828,225	639,217	2,664,385	1,114,992	169,333	317,312	619,521	4,885,543
Total, February, 1912.....	1,162,009	304,910	771,647	405,698	2,644,264	1,474,610	126,185	291,077	600,644	5,136,780
Total, January, 1912.....	752,317	112,959	437,915	64,926	1,368,171	1,382,605	180,547	339,253	451,773	2,354,178



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Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are practically unchanged.

	July 1.
Old rubber boots and shoes—domestic	9½ @ 9¼
Old rubber boots and shoes—foreign	9 @ 9½
Pneumatic bicycle tires	4½ @ 4¾
Automobile tires	9 @ 9¼
Solid rubber wagon and carriage tires	9¼ @ 9¾
White trimmed rubber	11 @ 11½
Heavy black rubber	4¾ @ 5
Air brake hose	5½ @ 5¼
Garden hose	1½ @ 1½
Fire and large hose	2½ @ 2¼
Matting	7½ @ 1

Antwerp.

RUBBER STATISTICS FOR MAY.

Details.	1912.	1911.	1910.	1909.	1908.
Stocks, April 30...kilo	437,513	599,114	470,468	607,787	717,913
Arrivals in May					
Congo sorts	152,024	187,106	128,052	442,098	337,368
Other sorts	12,902	29,125	17,969	64,728	62,757
Plantation sorts	107,367	41,754	44,037	8,235	15,279
Aggregating	709,806	857,099	660,526	1,122,848	1,133,317
Sales in May	275,369	243,089	116,663	433,610	361,740
Stocks, May 31	444,437	614,010	543,863	689,238	771,577
Arrivals since Jan. 1—					
Congo sorts	1,243,101	1,259,621	1,299,338	1,443,130	1,859,791
Other sorts	58,637	235,093	138,138	433,700	236,491
Plantation sorts	514,692	299,316	222,131	96,600	48,480
Aggregating	1,816,430	1,794,030	1,659,607	1,973,430	2,144,762
Sales since Jan. 1	2,046,531	1,768,232	1,657,256	1,879,927	2,380,079

RUBBER ARRIVALS FROM THE CONGO.

MAY 21.—By the steamer *Bruxellesville*:

Bunge & Co.	(Société Générale Africaine) kilo	23,800
do	(Chemins du fer Grand Lacs)	8,700
do	(Comptoir Commercial Congolais)	14,700
do	(Alberta)	1,100
Société Coloniale Anversoise	(Haut Congo)	4,250
do	(Cie. du Kasai)	51,000
do		2,400
L. & W. Van de Velde	(Comminiere)	9,000
do	(Comina)	8,800
do		1,800
Osterrieth & Co.	(Lubefu)	2,400
do		300
Charles Dethier	(American Congo Co.)	850
		129,100

RUBBER ARRIVALS FROM THE CONGO.

JUNE 11.—By the steamer *Elisabethville*:

Bunge & Co.	(Société Général Africaine) kilo	30,500
do	(Chemins de fer Grande Lacs)	2,800
do	(Comptoir Commercial Congolais)	8,300
do		900
Société Coloniale Anversoise	(Haut Congo)	6,390
do	(Cie. franç du Haut Congo)	5,375
L. & W. Van de Velde	(Cie. du Kasai)	83,500
do	(Comina)	17,170
do	(Cominiere)	6,000
do	(Velde)	6,800
Congo Trading Co.		4,600
Willart Freres		4,000
		176,335

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to May 20, 1911 and 1912. Compiled by the Ceylon Chamber of Commerce.]

	1911.	1912.
To Great Britain	947,187	2,205,112
To United States	669,141	1,268,902
To Belgium	127,606	489,501
To Germany	7,585	41,978
To Australia	16,013	37,655
To Canada	9,971	12,121
To Austria		11,920
To Japan	15,165	5,708
To Italy	3,597	4,692
To Norway and Sweden		39
To France	117	
To Holland	100	
To India	40	

Total

[Same period 1910—838,280 pounds; same 1909—359,661.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

	Singapore	Penang.	Port Swet-	Total.
	May 3.	April 30.	tenham.	1912.
Great Britain...pounds	3,214,710	2,270,432	6,874,146	12,359,288
United States	752,749			752,749
Japan	105,356			105,356
Continent	84,147	25,863	907,364	1,017,374
Australia	12,304			12,304
Ceylon		67,027	408,676	475,703
Total	4,169,266	2,363,322	8,190,186	14,722,774
Same period, 1911	1,903,169	1,480,300	4,494,251	7,877,720
Same period, 1910	1,012,863	671,186	2,622,166	4,306,215
Same period, 1909	832,793	1,113,491		1,946,284

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INDIA RUBBER WORLD

CAOUTCHOUC HEVEA BRASILIENSIS GUTTA-PERCHA

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AUGUST 1, 1912.

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 The Berlin Rubber Manufacturing Co., Limited, Berlin, Ont.
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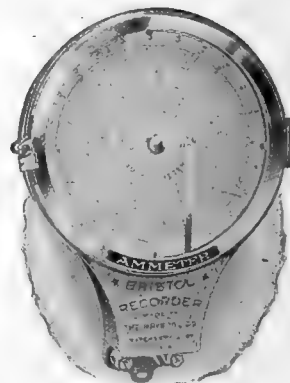
Bulletin No. 134 on Recording Millivoltmeters.

Bulletin No. 144 on Recording Gauges.

Bulletin No. 148 on Round Recording Gauges.

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THE PUTUMAYO HORRORS.

FOR the last two weeks the press of London and of New York has devoted a great deal of space to the atrocities that have been committed on the rubber gatherers in the Putumayo district, and owing to the fact that these cruelties have come to light while the memory of the barbarities in the Congo region, under the late Leopold's regime, are still fresh in the public mind, there has been a tendency among some of the editorial commentators to impute to the rubber trade some special malign influence to which these atrocities may be attributed. The only malign influence connected with the gathering of crude rubber lies in the fact that it takes place in remote and inaccessible localities where there is a total absence of civil law, and where the only rule is that of brute force, whose insignia of authority are the rifle and the knife. Wherever these conditions obtain there is liable to be a reign of unrelieved brutality.

The Putumayo rubber district lies along the banks of the Putumayo River, one of the tributaries of the Upper

Amazon. This territory has been claimed by Brazil, Peru, Ecuador and Colombia, but Brazil some time since withdrew its claim, and Peru has been most persistent in demanding the recognition of its sovereignty over this territory. Nearly twenty years ago some Latin Americans under the firm name of Arana Brothers, secured an exclusive concession from the Peruvian government to gather the rubber in this district. The company sent its agents, Latin Americans—not of the best type—to the Putumayo jungle, and there with their assistants, half-breeds and desperadoes generally, they started the gathering of rubber. They found there a number of exceedingly primitive Indian tribes, inoffensive, docile, singularly free from the vicious traits that aborigines often have, and untouched by the vices of a civilization that had not yet reached them. The first thing the invaders did was to despoil the natives of their weapons of defence, consisting largely of the native blow-guns, together with a few antiquated muskets that had found their way into that remote region; and then having them at their mercy the agents and their overseers plied them with every imaginable sort of cruelty to compel them to bring in the largest quantity of rubber. As the agents were paid in proportion to the amount of rubber produced, it was natural for men of their type to use all means—humane or inhumane—to make this amount as large as possible.

It is not necessary here to go into any detailed description of the horrors that were perpetrated. There is conclusive and overwhelming evidence that men, women and children were flogged, maimed, drowned, starved, beheaded, burned alive and buried alive.

In 1905, the firm of Arana Brothers, which had been gathering rubber for nine years, sold its concession to the Peruvian Amazon Company, a London corporation, having three Englishmen and four South Americans on the board of directors. The new company imported into the Putumayo district a number of Barbadian negroes to augment the band of overseers. These new recruits fell immediately into the methods of the camp, and soon became as barbarous as their predecessors, if not more so.

The first inkling that the world at large had of the appalling situation came from two young American engineers, Hardenburg and Perkins by name, who, after spending many months in the district, went to London in 1909 with the manuscript of a book entitled "The Devil's Paradise," wherein they had recorded the atrocities that they had witnessed. They found it impossible, however—so shocking were the disclosures—to get a London

publisher to produce the work; but some of the dailies printed it in part. The English government then sent one of its most trusted men, Sir Roger Casement, the British Consul General at Rio de Janeiro, to investigate the situation. He spent the summer and fall of 1910 in the district, and his report was made to the government in March, 1911. This report, substantiating every statement made by the two Americans, forms a record of the most brutal crimes practised upon the defenceless Indians, and extending over many years. The English directors pleaded total ignorance of the condition in their concession; but the English government, which had been so prominent in the international protest against the crimes of the Congo, naturally felt itself called upon to take immediate steps to suppress these equal horrors in South America, which had taken place in a concession held and operated by British citizens. But because of the peculiar relations maintained by the United States government towards all South American countries, by reason of the Monroe Doctrine, the British government first entered into correspondence with our State Department. This correspondence has been going on for a year. Our State Department, with a delicate regard for the feelings of the Peruvian government, which hardly seems to have been warranted under the circumstances, is alleged to have requested the British government not to publish Sir Roger's report until the Peruvian government had had time to take some measures towards stopping these crimes against humanity, and bringing their perpetrators to account. The recent publication of Sir Roger Casement's report was occasioned by the demand of the British Parliament.

It is most fortunate that this demand was made and that the facts have been given to the world, as nothing but this wide publicity will be effective in the immediate correction of these revolting conditions. The government of Peru has known for some years of the practice of these atrocities, but nothing has been done beyond the sending of one or two commissioners to investigate and report. The effectual ending of these horrors, which have been continued for so many years, will undoubtedly devolve upon the American government, with the co-operation of England, and with the approval of all civilized powers.

These exposures emphasize with tremendous force the desirability of the development and extension of the rubber plantation. On the rubber plantation, or at least on most of them, human rights are as secure as they are in the capitals of the civilized world. It has been a say-

ing for many years that every ton of rubber that came from the Amazon valley cost a human life. During the last twelve years 12,000 tons of rubber have been shipped to London from the Putumayo district. It is estimated that during that time 30,000 of the Putumayo Indians have been tortured to death—nearly three human lives for every ton of rubber. The term "red rubber," which has been applied to this particular product, is certainly no misnomer.

A QUESTION ALL COMBINATIONS HAVE TO SOLVE.

THE announcement that the United States Tire Co. intends, early this fall, to drop the names of its various brands and to mark all its tires with its own name—and that alone—brings to the front again a very interesting question, which has presented itself to all industrial corporations formed by the union of a number of smaller companies. The tendency of the industrial world during the last 20 years has been toward the merging of competing companies into one large corporation; and the question has constantly arisen in these "combinations" whether to retain the established brands of the individual companies or to eliminate them and mark all the goods of the different plants with the name of the one controlling company.

A very considerable part of the value of the individual companies, brought into these gigantic mergers, lies in the good-will which the smaller companies enjoy, the result of good business methods, coupled often with effective advertising, extending over a great number of years. The value of this good-will is recognized by the handsome allowance made for it when the mergers are effected. The visible emblem of this good-will, at least to the consuming trade, is the brand or trade-mark which identifies the company's product. Obviously, to discard this brand and to lose the accumulated value of years of honest manufacturing and judicious exploitation is to suffer a serious loss. On the other hand, for the controlling company to go on indefinitely pushing all its individual brands, one against another, is to proceed in a most wasteful manner. The question is—which is the wiser course—to abandon the old established brands and adopt a new one, or to continue with a multiplicity of trade-marks and the attendant loss of merchandising force?

Each new case must be treated by itself; but at the same time there are certain general principles always in-

volved, that may be laid down as a general rule of guidance. If the article manufactured by the old company has never been advertised, or only to a limited extent, its brand can obviously be changed without a serious loss of prestige. Or where it is so inexpensive that people, as a rule, will not trouble themselves to ask for a particular brand, being satisfied to get whatever the salesman may offer, there again the change of name is not a serious matter. For instance, in the case of small druggists' sundries, like hot-water bottles, syringes, small rubber mats, a change of name would not appreciably lessen the sale, as these articles being comparatively inexpensive, few people are much concerned as to the particular brand they get. The same is true of light rubber footwear. The average man buys a pair of rubber shoes when a storm is imminent, takes what the salesman put on his feet, grumbles at the price and on general principles criticises the quality, but never looks at the brand and would get no enlightenment from it if he did.

But when you leave the realm of small and inexpensive rubber articles, the situation is changed. The factory superintendent who has found that a certain belting or packing gives him excellent results, naturally wants to continue the use of the same brand. In footwear, the fisherman who has got a great deal of service out of a certain pair of rubber boots, is likely, not only to ask for that brand, but to extol it among his neighbors. The same is true, though possibly to a less extent, of miners, lumbermen and farmers. They buy their boots and heavy shoes by brand.

The value of a well-known trade-mark is even greater in the production of tires, for there is an item of material expense; and the motorist who has accomplished five or six thousand miles without a mishap on a certain brand of tires is naturally very favorably disposed towards that particular manufacturer and all his works. It needs no argument to show that in these articles, where brand stands for reputation and good-will, there is inevitably a serious loss where the brand is changed.

Most large combinations have solved this question by allowing the old brands to continue for a certain length of time, perhaps two or three years, while gradually introducing the new general brand; in many cases allowing that and the individual name to appear side by side until the trade had become accustomed to associating the two together, when the individual brand was dropped, the new blanket brand being the only one retained. This enables the company to concentrate its merchandising energy on a single name, a condition that has many obvious advantages.

Where the original companies, in addition to their company names, also have special names for certain of their product, these special names can, of course, be retained after the brand of the individual company has been merged in that of the general company. For instance, when the United States Tire Co. drops the name Morgan & Wright, it will undoubtedly retain the name "Nobby Tread" to designate a certain type of tire made by the Morgan & Wright Company, and which to a great many consumers, at least, is the significant identifying mark rather than the name of the manufacturer.

SYNTHETIC RUBBER ON ITS WAY.

IT is doubtful if Professor Perkin had any idea when he delivered his address on synthetic rubber, June 17, before the London Section of the Society of Chemical Industry, how much of an audience he really had. He probably thought that it comprised merely the learned members of the chemical fraternity who sat before him. He has discovered since that it included everybody interested in rubber in the four quarters of the globe. The attention that this address has received and the discussion it has excited, not only in rubber circles but in the press generally, show that the attitude of the rubber world towards synthetic rubber is one of alert expectancy—it obviously believes that synthetic rubber is on its way.

It was some 30 years ago that an eminent English chemist, Sir William Tilden, discovered that isoprene could be produced from turpentine, and that rubber could be produced from isoprene—but the process of making rubber in this way was extremely expensive. Hundreds, or more accurately thousands, of chemists during the intervening 30 years have sought the discovery of a process by which isoprene could be cheaply produced, and then inexpensively converted into rubber. During the last three years a group of German chemists and another group of English chemists have been working laboriously on this problem—each fearing that the other would solve it first. In England Professor W. H. Perkin, of the University of Manchester, Dr. F. E. Matthews, and Sir William Ramsay, assisted by Professor Fernbach, of the Pasteur Institute of Paris, have been working together most industriously to produce a low-cost rubber. The results of these efforts are embodied in Professor Perkin's paper, which is treated in more detail elsewhere in this issue. In a word, they consist of the conversion of starch, as found in various cheap materials—pota-

corn, maize, etc. into fusel oil by a process of fermentation discovered by Professor Fernbach. Various alcohols, separated from this fusel-oil by distillation, are then converted into isoprene, or one of its homologues, by the action of chlorine. Dr. Matthews then discovered that by the use of metallic sodium, isoprene could be readily converted into rubber, having exactly the same chemical character as rubber produced from the tree. These English chemists assert that it will be possible to produce rubber in this way, in commercial quantities, at 60 cents a pound, and they hope to be able to produce it for about one-third of that amount.

There is naturally considerable skepticism in the trade in regard to these announcements—a skepticism attributable to the fact that similar claims have been made from time to time during the last quarter century—but it must be borne in mind that the English group of chemists who are behind the present announcement are men of good repute and recognized standing. It is hardly credible that they have deceived themselves, and still less thinkable that they desire to deceive others. They undoubtedly have made a distinct advance towards the goal of practicable, commercial, synthetic rubber. Their claims are further fortified by the work of the German group of chemists who have arrived at practically the same result through their independent researches. To be sure the Englishmen have not yet produced their new rubber in commercial quantities, nor subjected it to the physical tests which must ultimately decide its industrial value; but the German chemists are reported to have applied physical tests to their product with very satisfactory results.

But no alarm need be felt by investors in rubber plantations, for, as is set forth in detail on another page of this issue, five of the leading plantations of the Far East show in their reports for 1911 that the rubber which they sold at an average price of \$1.22 per pound, cost to produce less than 39 cents a pound. Synthetic rubber, even if it had now arrived in commercial quantities, would have to be produced at considerably under 60 cents a pound, seriously to threaten the plantations. If, as Professor Perkin hopes, commercial synthetic rubber can be produced at 24 cents a pound—that would be another story, but the day of 24-cent synthetic rubber is probably some distance away. When it arrives, it may find plantation rubber even lower. It is an interesting contest—science vs. nature, and may the most economical producer win.

THE "AKRON" DISASTER.

JUST how far man will be successful in his attempted conquest of the air can at present only be conjectured. That aviation will have a constantly increasing scientific interest, and that it will play a significant part on the next occasion for military operations, cannot be doubted; but whether it will ever have an important place in our commercial life is still an unanswered question.

Man is equipped by nature to walk the earth, and—where necessary—to swim the seas. These two elements, in their normal conditions, he has brought under his control. But the air is a thing of a different color. Man has no natural equipment for its subjugation. It is too unstable and elusive for his grasp; but the attempt to conquer it will go on—attended with a sad sacrifice of human life. But no sacrifice of human life is in vain which is in the cause of man's increasing dominion.

During the last 20 years, since serious attention was first turned to the dirigible balloon, 56 lives have been lost in this field of discovery, but they have been so many contributions to legitimate science. The intrepid Verman and his four courageous comrades, whose lives were snuffed out a thousand feet above the waters of Atlantic City, when the famous dirigible "Akron" came to grief, in the early morning of the second of July, will take their place among the martyrs to scientific progress. Entirely apart from the human sympathy that goes out to the victims of this shocking disaster, great regret must be felt at the untimely taking off of the aeronaut-in-chief; for Verman, while perhaps not an aerial scientist of the first class, had proved himself a man of tremendous determination and undaunted courage, and of great fertility of resource.

Just how the fatal accident occurred can never, of course, be definitely determined. One theory is that as the hydrogen gas was let out from the escape valves it came in contact with electric sparks from the motor, and thus caused the explosion. Such an explanation is given, with considerable detail, by an expert quoted in our Akron letter in this issue. It is interesting and plausible. Another theory, however, which seems to rest on reasonable grounds, is that the hydrogen expanded so rapidly under the sudden heat of the early morning sun that it could not be let out through the valves fast enough, and that the strain upon the thin covering of the balloon became more than it could stand.

It has been advanced by a certain scientist that rubberized fabric, when kept for some time in contact with hydrogen gas, as when a balloon is inflated, absorbs some of the hydrogen and thus suffers a loss of purity and strength. This may have been the case with the "Akron," which had been inflated for some months. By reason of this fact, its covering may have been somewhat weakened and thus less able to withstand the great strain of the expanding hydrogen.

Trinidad and Its Rubber—II.

By the Editor of "The India Rubber World."

A Yellow Fever Souvenir—Port of Spain—Beginnings of Rubber Planting—St. Clair Experiments—Many *Castilloas* in Trinidad—A Bit of History—*Funtumia*—*Hevea* the Present Hope—Tapping and Coagulating Processes—Yields of *Hevea Brasiliensis* and the *Confusa* Type—Mr. Hart and the American Corp—Professor Carmody on *Castilloa* Resins—Tapping by Pricking—List of Trinidad Rubber Estates.

I HAVE as a souvenir an official document bearing the coat-of-arms of the colony of Trinidad, which was thrust upon me when I returned from my trip up the Orinoco. It read: "Take notice that you, being a person permitted to land subject

to surveillance in this colony from a place infected with yellow fever," etc.

This kept me reporting to the port physician daily for a week. There was no yellow fever up the Orinoco when I was there, but as all the rest of the West Indian

Garden. The late J. H. Hart, whose contributions to this paper will perhaps be remembered, more than any one else laid out and beautified these gardens.

Fully thirty years ago a few rubber trees were planted in these gardens, and during the past half-dozen years much has been done in the way of tapping, coagulating and experimenting.

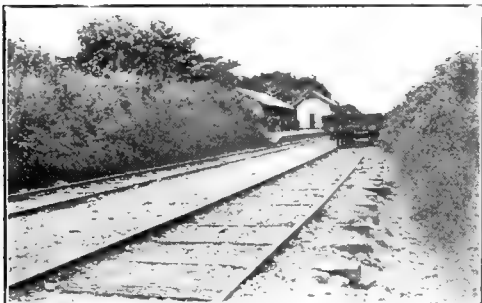
Close to the gardens is the St. Clair Experiment Station. When first I visited this station it was in charge of the late J. B. Caruthers, who had come from the Middle East in the midst of the rubber boom, full of the determination to make rubber profitable here. His sudden death did not stop the work, which, under Professor Carmody, is now being carried on by Mr. Freeman, who is much more of an organizer and practical man of affairs than his predecessor could ever have been.

There are in the island a great many rubber trees; indeed almost every cacao plantation has at least a few. In driving through the country one continually sees *Castilloas*, *Funtumias* and *Heveas*, but as a rule the trees are young, and in many cases where they are fully developed they have not been tapped. I

questioned several planters about this and they freely acknowledged that they were afraid of injuring the trees, and were waiting until they could be sure of the best way before beginning the extraction of latex.

There is more *Castilloa* than any other rubber producer, the number of trees being considerably over one-half million, and as elsewhere, the tree is uneven in its growth and

production. As a basis of hope, however, there is the record of a *Castilloa* in the Botanic Gardens that gave 4 pounds and 15 ounces in two tappings one month apart. The tree, to be sure, is 30 years old, and grown in a little valley where it has the rich wash of the hillside. It is a big one, some six feet in girth



RAILWAY STATION FROM ENTRANCE TO RUBBER LANDS ESTATE, LONGDEVILLE.

world, and Venezuela as well, quarantine against Trinidad's bubonic plague, I suppose they do this to get even.

Trinidad is very English, as is natural, and most of the government positions are held by Englishmen, from the Governor down. The residents have about the same distaste for Americans that the Londoners have for Trinidadians.

It is doubtless the fault in part of the hordes of winter tourists who invade the chief hotel—the Queen's Park—at stated intervals, and whom the management allow to seriously in-

commode regular patrons. But that would hardly account for the newspaper attitude, which editorially comments upon the tourists as gum chewing, loud-voiced and ignorant. Still they reach eagerly for American money. There are exceptions among the island residents, and they stand out in bold relief, cordial and friendly.

The little island takes itself very seriously, and has all sorts

of ponderous functions that the Governor opens and closes, and a social system that is made up of innumerable circles that have for a common center "Government House."

Port of Spain, the capital, is a rather flat city, with a number of beautiful government buildings and a wonderful Botanic



DRAGON'S MOUTH, TRINIDAD.

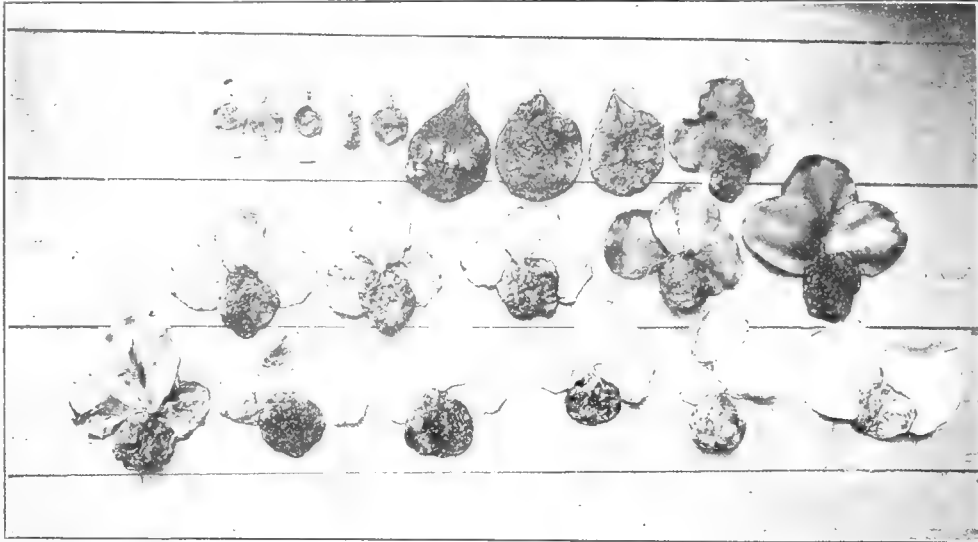


QUEEN'S PARK HOTEL, TRINIDAD.

and very thrifty. One's doubts are renewed, however, when examining some twenty or thirty *Castilloas* on the other side of the hill. They are not thrifty, nor would they be picked as possible producers of more than two or three ounces per tapping. It is gradually dawning upon planters that the *Castilloa* will grow almost anywhere, but it will produce profitably only under the most favorable conditions.

For some time, as the planters began to doubt *Castilloa*, their hope centered upon *Funtumia*, and from 20 to 30 thousand of these beautiful trees were planted. The yield, however, was not satisfactory and they turned to *Hevea Brasiliensis*, of which there are about

St. Clair Experiment Station, not only for help in determining proper soil in which to plant rubber, but to secure expert advice on diseases, insect pests, tapping tools and methods of coagulation. It has, therefore, been necessary for the Experiment Station to be equipped with the best tools, and also with simple and efficient appliances for turning the milk into a merchantable rubber. In the case of the *Castilloa*, for example, they have done away with both the Mexican style and that of the Middle East, and tap in the fashion prevalent in Tobago. That is, an enameled cloth apron is placed about the base of the trees



SAMPLES OF RUBBER, EXPERIMENT STATION, TRINIDAD.



FUNTUMIA, 10-YEAR-OLD TREES, ST. MARIE ESTATE, TRINIDAD.

one hundred thousand trees now planted, on the island.

The planters naturally look to the scientists in charge of the



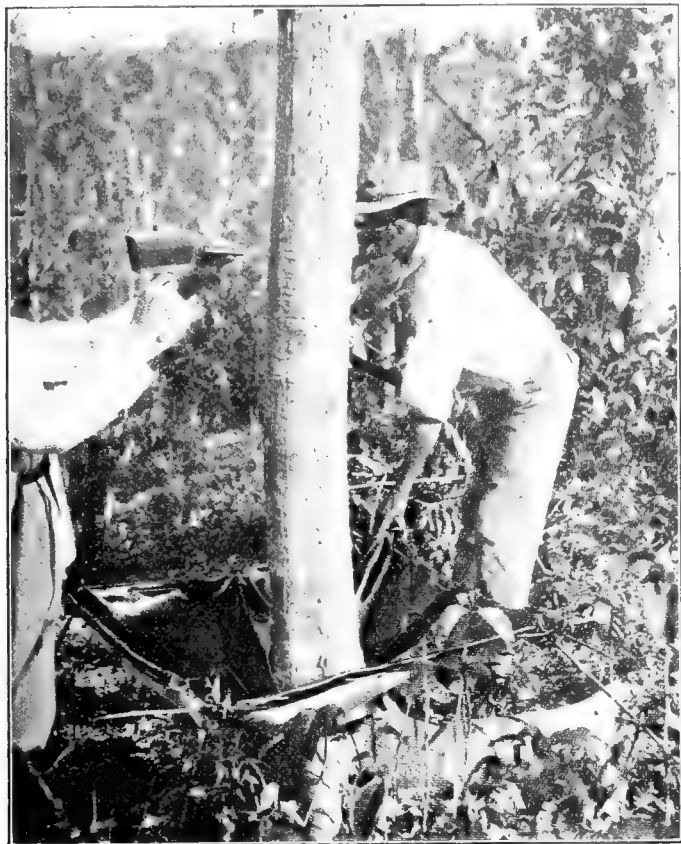
NATIVE ASSISTANTS TAPPING, EXPERIMENT STATION.

to catch the latex. Then with a 2-inch chisel and mallet, horizontal incisions are made about 1 foot apart up to 30 feet from

the ground. The cuts thus made heal very readily and the tree does not need so long a rest before it is tapped again.

The *Funtumia* after having been spiraled and half-spiraled is now herring-boned.

The *Hevea Brasiliensis* is first smoothed down with a spoke shave. It is then tapped both by the full and by the half herring



METHOD OF TAPPING CASTILLOA, TRINIDAD.

bone. At the time of my last visit they were using "Newey's Secure" knife and Sculfer's tapping tool. The tapping begins at daybreak, the best flow occurring at sunrise. The work is usually done by the native assistants, who are very skilful and reliable. The latex is caught in tin cups in which is a little water.

By 7:30 to 8 the flow has ceased, when the cups are taken off and their contents weighed and a record kept of the product of each tree. The latex is next strained, acetic acid is added, and it is set away in white enameled plates to coagulate. Twenty-four hours later the spongy pancake that has formed is taken out of the plate and the water squeezed out of it by means of a rolling-pin. The date and the number of the tree is then pricked in, and it is laid away to dry for twenty-four hours. It is then smoked. The apparatus consists of a small pot stove above which is a smoke box filled with wire shelves. Dried ants' nests are used for fuel, and the rubber is left in the smoke house until it becomes as nearly translucent as may be. About three days of smoking, the fire going out at night, is usually sufficient.

In this connection the results of some of the tappings of *Heveas* at the Experiment Station may be of interest. Fifteen trees, *Hevea Brasiliensis*, gave the following yields from July to December last year:

No. Tree.	Girth.	Age.	Yield.
24	23 inches	13 yrs.	1 lb. 13.9 oz.
23	20 3/4 "	13 "	1 " 10.5 "

16	24 1/2 "	13 "	1 " 6.04 "
17	27 1/2 "	13 "	1 " 11.72 "
18	29 3/4 "	13 "	6 " 4.63 "
19	29 1/4 "	13 "	2 " 0.78 "
14	21 3/4 "	13 "	1 " 5.63 "
15	25 1/2 "	13 "	3 " 11.1 "
2	36 "	13 "	4 " 1.70 "
20	28 1/2 "	13 "	1 " 6.76 "
3	34 "	13 "	3 " 1.09 "
21	23 "	13 "	0 " 14.52 "
22	29 "	13 "	2 " 11.13 "
25	27 "	13 "	1 " 1.44 "
1	28 1/2 "	13 "	4 " 7.4 "

Six trees of the *Hevea Confusa* type, tapped in the same manner and for the same time, produced as follows:

No. Tree.	Girth.	Age.	Yield.
6	34 3/4 inches	13 yrs.	1 lb. 3.9 oz.
8	36 1/2 "	13 "	1 " 8.6 "
5	33 3/4 "	13 "	0 " 4.86 "
4	31 3/4 "	13 "	0 " 8.24 "
7	35 "	13 "	1 " 0.68 "
10	34 "	13 "	1 " 1.20 "

It was in Trinidad that the first experiments toward planting *Castilloa* as an annual crop were undertaken. In 1902 the late J. H. Hart, then in charge of the Botanic Gardens, sent me samples of *Castilloa* rubber and wrote as follows:

"Some few years ago I pointed out the apparent possibility of cultivating *Castilloa elastica* as an annual crop. This was based upon an analysis made by a gentleman studying the rubber question, who found 8 per cent. of rubber in stems of one-year-old trees. That the actual amount of rubber material was found, there can be little doubt, but its quality was not stated, and had



SQUEEZING WATER FROM PANCAKES, EXPERIMENT STATION, TRINIDAD.

to be proved later. This has been done at the Tropical Experiment Station, Trinidad. But it is now evident that although rubber material may have been found, it was of inferior quality,

and only the larger trees eight or ten years old, can be depended upon to furnish rubber of good quality. It was anticipated that rubber material could have been extracted from one-year-old trees, but this has proved illusory, for although chemically, the rubber is there, yet it is not in such a condition as to make it of market value, and up to the present no chemical process has been devised which will change the soft and sticky material obtained from young trees into the hard and elastic product afforded by mature trees.

"Experiments with rubber fluids, or *Latex*, show that *Castilloa* rubber taken from trees at 4½ years is inelastic, somewhat brittle and of quite inferior quality, while rubber fluids taken from trees 10 to 15 years gave rubber of excellent quality.

"Side by side with these experiments have been conducted tests of the rubber fluids of *Funtumia elastica*, from trees 4½ years planted, and these are found to produce rubber of excellent quality at their age, and, moreover, the material is at once easily coagulated by heat as taken from the tree, and the fluids are found to contain considerably over 50 per cent. by weight of solid rubber.

"Unless some chemical process can be devised to alter the resinous and sticky character of the rubber obtained from young

34 to 2¾ pounds of dry rubber per tree at a single tapping; but it was found that the wounds made by these pricking instruments had usually a rough edge and healed badly. Another objection



PALM-SHADED AVENUE, TRINIDAD.



ALLSTONIA SCHOLARIS, TRINIDAD BOTANIC GARDENS.

Castilloa trees, it is utterly useless to plant them with a view of obtaining annual crops."

In this connection Professor Carmody's table of the resin contents of *Castilloa* rubber in Trinidad is very apropos:

Age Years.	Per Cent. Resin.
3	53.99
7 to 8	28.60
do	26.93
do	27.09
do	27.31
do	15.29
15	13.42
do	11.37

An interesting experiment was tried by Mr. Frank Evans in the Trinidad Experimental Station, in which the trees were tapped by means of a great many small punctures spread over the whole surface to a height of 8 to 10 feet. This system promised excellent results, as the first tests gave a yield of from

to this method lay in the quantity of labor required; and a suggestion is made that this difficulty could be overcome by the use of a small light portable engine, worked by compressed air, and connected by rubber tubing with the tapping tool. Of course, such an engine would have to be very light to be carried about by one man, and then, the cost would be considerable, though many experts believe that the tapping of the future will be done by steam or electrical mechanism.

That rubber is really being officially recognized as a product of Trinidad is beginning to be shown by the official lists. They consisted formerly of cacao, cane, cotton, etc., but the following are listed for 1912:

RUBBER ESTATES IN TRINIDAD.

Plantation.	Owners.
Botanic Station.....	Trinidad Government
Rio Claro.....	Poole Syndicate
Sta. Onita.....	F. Boos
Stearrbonum	Carr Bros.
Nonpareil	E. A. Robinson
St. Marie.....	W. Greig
Verdant Vale.....	Trinidad Cacao & Coffee Co.
Narva	G. de Games
Oropuna	Department of Agriculture
Monte Cristo.....	H. Monceaux



HEVEA NURSERY, BOTANICAL GARDENS, TRINIDAD.

RUBBER ESTATES IN TRINIDAD—Continued.

Venezuela	Gordon, Grant & Co.
La Victoria.....	G. G. Brown
St. Joseph Nurseries.....	H. Caracciolo
Ellensville	N. F. Graham
San Jose.....	Heirs of Joyau
La Gloria.....	De Putron & Ruth
La Monserrat.....	Alice Boissiere
San Juan.....	F. Agostini
San Felipe.....	F. Agostini
Sta. Luisa.....	A. Sellier
El Dorado.....	C. Boos
La Mariquita.....	A. de Tapeyrouse
Solo Consuelo.....	J. S. Caracciolo
San Salvador	Joseph D'Abadie
San Pedro.....	Heirs D'Abadie
Maraval	A. Devenish
Tortuga	A. de Verteuil
Guaracara	Heirs M. de Vertue
San Pablo.....	Mrs. M. Oipriani
Santa Lucia.....	L. Devenish
Santa Clara.....	Heirs W. Schorner
Santa Riti.....	Raoul Maingot
La Concordia.....	Sidney Knox
La Concordia.....	A. L. Maingot

(To be continued.)

IDENTIFYING SEEDLINGS OF THE CONFUSA TYPE.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Dear Sir:—I noticed in the last number of the "Agricultural News" (June 8, 1912) of the Imperial Department of Agriculture, Barbados, a brief description by you of the chief differences between the true *Hevea Brasiliensis* and our suspected *Confusa* hybrids.

Is there any other publication in which I could obtain fuller information? I notice you also state that it may be probably possible to differentiate between them in the seedling stage. At the Experiment Station where we have both types of seedlings growing (but with the so called *Confusa* hybrid rigidly isolated) the differences between the two—with a little practice—can be readily distinguished; on examination of several thousand seedlings on a private plantation I was able to pick out those which conformed to the latter type—only a few I am glad to say—which were promptly destroyed. I have carefully examined our seedlings from selected good yielders and have found them all true to the parent, which is satisfactory. The curious reticulated venation of the leaves is greatly exaggerated when the plants are growing under fairly heavy shade.

Yours very sincerely,

A. E. COLLENS.

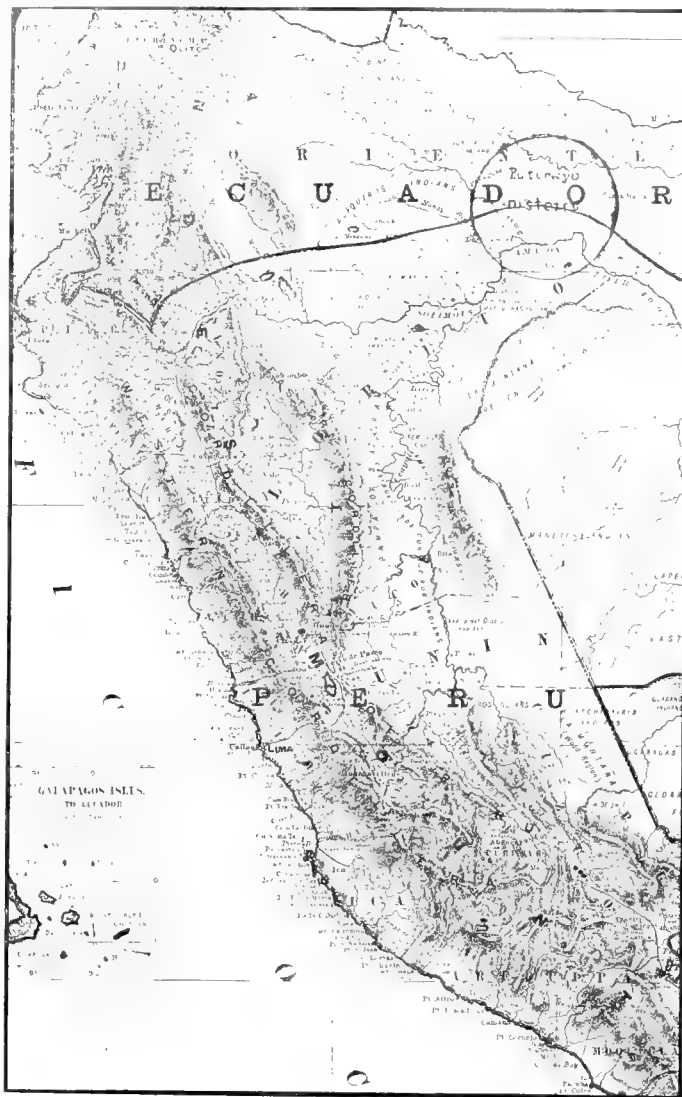
Government Laboratory, Department of Agriculture, Trinidad.

THE PUTUMAYO DISTRICT.

THE Putumayo atrocities, which have attracted so much attention and excited so much horror in the civilized world—since the disclosures made in the report of the investigator sent out by the British government—are treated at some length in the editorial department of this issue. The accompanying map shows where this district lies. The boundary lines in the jungles of the upper Amazon are so indefinite, that most maps show the Putumayo River as lying within the borders of either Colombia or Ecuador, but Peru for many years has laid claim to this territory and it was the Peruvian government that made the rubber concession in the exploitation of which these crimes have been perpetrated.

The Putumayo territory is only 800 miles from Lima, the capital of Peru, in a straight line; but the Andes are so impassable at this point, that the only way of reaching the Putumayo district

from Lima is by way of the Pacific coast, across the Isthmus of Panama, along the northern coast of Venezuela and the Guianas to the mouth of the Amazon and thence up that river to its headwaters—a journey all told of over 6,000 miles. The distance, however, from Iquitos is only 200 or 300 miles, so it would seem quite possible for the Peruvian government to exercise its authority over this district if it were sufficiently disposed to do so. The agent recently sent out by our State Department, Capt. Stuart Fuller, has reached Iquitos. It should not be long, there-



MAP SHOWING PUTUMAYO DISTRICT.

fore, before our government gets direct information from the seat of the troubles.

Much credit must be given to the British Parliament for demanding the publication of Sir Roger Casement's report, as it is a damaging commentary on the members of the English corporation, which for the last seven years has owned this rubber concession. The publication of this report, however, means that these atrocities will soon cease, for in this stage of civilization crimes of this kind have only to be uncovered to be ended.

THE GOODRICH COMPANY TO DOUBLE ITS OFFICE BUILDING.

The B. F. Goodrich Co., Akron, Ohio, has begun the erection of a large addition to its present office building, which will practically double its size. This is done to accommodate the officials, sales managers, salesmen and general clerical force of the Diamond Rubber Co., recently merged with the Goodrich Company.

THE NEW BRITISH SYNTHETIC RUBBER PROCESS.

IN view of the interest exacted by recent English synthetic rubber developments, it is of importance to consider what they really consist of. In his paper read on June 17, before the Society of Chemical Industry, in London, Professor Perkin dealt with the labors of the group of investigators who had been working on the subject; this group including himself, Dr. F. E. Matthews, Sir William Ramsay and other scientists.

The results obtained tended in two main directions: (1) The production of isoprene and (2) its conversion into rubber; thus covering the entire scope of the synthetic rubber question. In connection with the first point, it had been found possible to obtain fusel oil economically from starch by a process of fermentation. From this fusel oil, by a series of fractionary processes, various alcohols were derived which would in turn yield isoprene and its homologues; the pivotal point of all synthetic rubber processes.

Isoprene having thus been obtained, its conversion into rubber naturally constituted the next step. This, it is claimed, is effected by the polymerizing action of metallic sodium, rapid transformation into rubber in quantity resulting from the process in question.

While this latter point had been elaborated by Dr. Carl Harries, of Kiel, Professor Perkin claimed for English scientists priority in the discovery of "sodium rubber." In this connection it is of interest to note from Dr. Harries' earlier paper read at Freiburg (at the Congress of German Chemists) that he does not consider the rubber obtained by means of sodium as identical with the natural product.

MUST HAVE CHEAP ISOPRENE.

But, as Professor Perkin remarked, the discovery of a practicable sodium process would not be of practical utility, till means have been found of producing the raw material (isoprene) at such a price and in sufficient quantity to allow of the production of rubber on a commercial scale. This, he urged, was recognized by him and his associates as the crux of the whole matter. In their search for a suitable substance as a basis, they had fixed upon fusel oil, derivable from starch (in the form of cereals, maize or tubers) at a price of 1d. per pound. This fermentation process has been elaborated by Professor Fernbach, of the Pasteur Institute, Paris, after experiments lasting 18 months. He had likewise dealt with the production of acetone from starch.

The different alcohols, such as isamyl and butyl alcohol, separated from this fusel oil by fractional distillation, could be converted into isoprene, or its homologues (butadiene, etc.), by the action of chlorine. The only alcohol, however, which had been obtained in commercial quantity was butyl alcohol, which is the basis, *not* of isoprene, but of butadiene. Hence (as the "India Rubber Journal" remarks), since Professor Fernbach has failed in getting the alcohol which is the basis of isoprene, the material which the investigating committee has adopted for the production of isoprene—starch—seems so far to have been a failure. Butyl alcohol when treated by chlorine, ultimately gives as a derivative—butadiene, which, when brought into contact with metallic sodium, forms a type of rubber, it is true, but not the normal rubber, which is obtained through isoprene, acted upon in a similar way.

AT WHAT PRICE CAN SYNTHETIC RUBBER BE MADE?

Thus, it is added, the cheap production of isoprene remains a problem still to be solved, and unless such a method can be found, the knowledge of a rapid method of converting it into rubber will be comparatively valueless.

While it has been claimed that the new process would allow of producing rubber at 60 cents per pound, with a possibility of arriving at 24 cents or less, Sir William Ramsay, who has been interested in the experiments, has said:

"Our experiments as to the best methods of producing rubber will probably last for a couple of years. Then, when

we have determined the best methods, we shall erect a manufacturing plant on a large scale."

FINANCIAL ASPECTS OF THE CASE.

Under these circumstances the action of the inventors in more or less disclosing their processes (the results of which are as yet incomplete) has, it is considered, been doubtless precipitated by the offering on the stock market of 450,000 Preferred £1 shares of the Synthetic Products Company, which, it is stated, have met with a very poor reception. According to the London correspondent of the New York "Times," Professor Perkin, Sir William Ramsay, and other eminent scientists are interested in the company, the total capital of which is £500,000. Profits are expected at first to be derived from acetone and fusel oil. By latest accounts, the company claims that over £80,000 had been subscribed, which would be sufficient for establishing the acetone and fusel-oil plant, and for demonstrating the synthetic rubber process on a large scale. The fact that the synthetic rubber process needs more demonstrating, would seem to confirm the evident view of scientists that it has not yet reached a stage of finality.

GERMAN OPINION.

While the new process, according to the view of the English rubber press, has not yet assumed a practical shape, German expert opinion has been in general to the same effect. The "Gummi-Zeitung," while postponing detailed consideration of the subject until it has had an opportunity of examining the full text of Professor Perkin's paper, refers to the proposed exploitation of the new process by a company with large capital. This company, it is remarked, would seem to contemplate, in the first place, the production of acetone from starch, and only in the second, the manufacture of artificial rubber from fusel oil, which is a by-product obtained in extracting acetone from starch. Fusel oil, it is added, will not yield isoprene, but only butadiene, or butadiene rubber, differing in an appreciable degree from natural rubber.

Thus the new process has been received with reserve in both England and Germany, on the ground that its merits have to be more fully tested than has been possible since its appearance upon the industrial stage.

Even without the publicity just recently directed to the subject, the interesting papers read at Freiburg by Dr. Harries and Dr. Hofmann, which will be dealt with next month, and which had already directed attention to the present situation of synthetic rubber from theoretical and practical standpoints, would have brought it to the front. The final result will be the "survival of the fittest;" illustrating the French proverb that "the better is the enemy of the good."

An interesting contribution has just been received from Dr. Fritz Frank, of the Henriques Chemical Laboratory, Berlin, upon the general question of synthetic rubber; likewise referring to Professor Perkin's recent statements. Being too late for use in this number, it will be dealt with in the next issue.

FUSIONS OF AUSTRIAN RUBBER COMPANIES.

According to further details received, the fusion of the Austrian-American Rubber Manufacturing Co. with the Calmon Asbestos and Rubber Works Co., of Vienna, has been effected through the co-operation of the Vienna "Bankverein" with the Lower Austrian Discount Co.

It is stated that at the same time the Austrian-American Rubber Manufacturing Co. acquired the whole of the shares of the Semperit Rubber Manufacturing Co. In consequence of these fusions, the nominal capital of the first-named company will be increased by the equivalent of \$400,000, the new capital being furnished by the two banking houses referred to.

Coagulation—Its Technique and Chemistry.

BEING the stage at which the article first assumes its permanent condition, coagulation forms the most important and critical feature in rubber production. Hence in discussing the subject, it is advisable to consider it, under its various forms, with reference, in the first place, to known processes.

As Dr. Frank, of Berlin, the well-known rubber expert, has pointed out, there are four basic methods:—

- I. Smoking.
- II. Drying.
- III. Separation by Chemicals.
- IV. Mechanical Separation.

I. SMOKING PROCESSES.

Among the older processes of this class are those of Brown & Davidson and Kerkhove. The process of Derry Dr. Frank regards of a certain importance from a technical and experimental point of view, as well as that of Cotinho (Dannin & Mello, Belem), the products of which, exhibited last year in London, met with his approval. Far more technically important and more suitable for adoption, he considers the processes of Cook (Shaw) and Da Costa (Bridge), which separate the rubber from the latex without completely drying up the latter, as occurs in the smoking process, properly so-called.

The method usually adopted in South America is fully described. Dr. Frank adds that the patented Shaw and Bridge processes, as already mentioned, do not dry up the whole of the latex with all its components, but effect a separation into a serum and a coagulate. The latter (the rubber which has been separated), when the process has been rightly carried out, is uniformly penetrated by the component parts of the smoke. These technical smoking processes, he remarks, may be considered more or less in conjunction with those in which chemicals operate a separation of the rubber from the serum and its components.

Smoking processes, in the proper sense of the word, are referred to as those of Derry, Cardozo, Dannin, and Wickham. Those of Da Costa and Cook are specially mentioned as demonstrating great technical progress.

II. DRYING PROCESSES.

Some kinds of rubber dry directly on the tree, without the intervention of drying agents, and are taken out in the shape of rubber. According to the degree of solidification attained, the substance is simply removed in threads, and compressed into large lumps, or wound. To this kind of process belongs the wild preparation of *Ficus* rubber. Scrap of all descriptions of rubber is generally obtained in wild and plantation culture through drying, in many cases with the help of chemicals. There is also, in some cases, simultaneous addition of certain decoctions (such as tannic acid, soap, salt, etc.). Another important drying process in conjunction with the use of chemicals is the Leva process, discovered by Dr. Hindorff and used in producing plantation *Manihot* rubber. In this process, the tree is previously coated with the extractive chemical solutions, the bark then receiving a number of incisions with a rounded knife. The latex which exudes coagulates while running down, and is gathered from the trunk.

A typical drying process, which has proved successful with *Kickxia* latex in West African plantations, is that of Strauch, in which the latex is let flow on boards, provided with ledges to prevent overflowing. The wood absorbs a part of the moisture, and the next day the latex has solidified into a smooth slab. It is then removed from the wood and dried further. It has been found necessary and advantageous in this process to previously add to the latex certain chemicals, such as purub, forma-

line and other agents facilitating the separation of the rubber.

A direct tannin drying process for *Funtumia* (*Kickxia*) was first explicitly defined by A. Schulte. A certain quantity of *Funtumia* latex is poured into a vessel resembling a pan, and sprinkled with tannin solution. The vessel is then shaken, and before long the mass can be turned in the mould like a pancake. The still uncoagulated side is then sprinkled with tannin and the movement continued. After a short time solidification has so far progressed that the cake thus formed can be passed through a wringer, which allows the watery serum which has remained to partially escape.

III. SEPARATION BY CHEMICALS.

Many chemicals exercise a separating influence in the extraction of rubber from the latex. To a certain extent, the first collectors of wild rubber used these influences as they existed in the form of smoking and plant juices, as well as in soaps and salts; and in the natural forms of perspiration, saliva and urine. It is not generally known that at one time rubber was extracted by chewing from portions of plants.

In the adoption of chemicals for plantation operations, as Dr. Frank remarks, acetic acid was and has continued to be one of the coagulants most generally used. He adds that according to Schidrowitz, this process (originally suggested in Ceylon by Parkin in 1898) is now used for coagulation in about 98 per cent. of the plantation rubber produced. At the same time an English expert has asserted that on account of its being coagulated with acetic acid, plantation rubber is unsuitable for use in cables and for other high-class purposes.

Approval is expressed of the action of the carbonic acid process, by which that agent separates the important inorganic bases as indifferent salts, together with the rubber, throughout which it is uniformly divided. It does not split up the albuminous substances, but nevertheless apparently operates their separation.

Dr. Frank cites a number of other chemicals and preparations, which can, in his opinion, be more or less recommended for the extraction of rubber. These include formic acid, lactic acid and homologous acids of this class, as well as citric acid and tartaric acid. An objection seems to exist against oxalic acid, on the ground of its taking up the indifferent salts of iron and transforming them into soluble salts. Plant juices containing tannin, and plant decoctions (as well as phenole and creosote, according to their degree of purity), are also referred to. To the last named chemical group belong other alcohols of the sebatic class. Finally, for a special purpose, formaline has proved successful. Of inorganic substances, a number are indifferent, this remark, however, not applying to common salt. Chloride of calcium, on the other hand, seems to be more or less indifferent, or even harmless. It is added that, on principle, metallic salts should be avoided, particularly those of iron, copper, manganese and quicksilver. Of the inorganic acids purub and carbonic acid are spoken of as not only harmless, but even very favorable.

Expert opinion seems to be more skeptical as to the general use of sulphuric acid and muriatic acid.

With respect to albumen, Dr. Frank arrives at the following conclusions:

1. All agents which precipitate and denature albumen operate towards separating the rubber.
2. Separating agents which exercise a decomposing influence upon the accompanying albuminous substance, or lead to its decomposition, require in addition to the coagulating agent, the simultaneous presence of preservatives. Substances which do not exercise such a decomposing effect can be used by themselves.

On the general question of chemical coagulating agents, Dr. Frank remarks:

"Many products launched under attractive names, often conceal behind them simple and well-known substances . . . If the price is suitable, trials should be made. The products obtained by the use of new coagulants should not, however, be placed on the open market, but should first be submitted to a testing bureau . . . Many attractive secret agents are, moreover, not introduced for the purpose of deception, but because the inventors are not acquainted with the materials used, thinking with a stroke of the finger they can open the eyes of an industry."

THE MECHANICAL SEPARATION

In a certain degree there belong to mechanical methods of separation those drying processes which are based on the mechanical separation of the serum from the rubber by porous substances, such as clay, wool, etc. But, as Dr. Frank remarks, the real mechanical method for removing the rubber substance from the latex is the centrifugal process. Apart from all patents, he considers the process of this kind most likely to be used is that of Smith, shown at the London International Rubber Exhibition, which he regards as particularly suitable for *Ficus* latex. He adds that it also seems adapted for *Hevea* latex, but in the latter case acid should be added previously to the centrifugal action. Although within moderate limits, the "Michie" process has been employed in Ceylon, being a combination of the centrifugal and centripetal processes.

Another mechanical process of separation is that used on a large scale in the Dutch colonies, for the coagulation of *Ficus* latex. The latex, after having been freed by straining from mechanical impurities, is subjected to the action of a beater or twirling rod. At one time this process was tedious, but it was accidentally discovered that the addition to the fresh latex of the thickened, creamy secretions from latex which had been standing, materially accelerated the separation, thereby rendering the process adaptable for use. The basis of this process had been a number of years ago indicated by Eduardoff, in connection with African vine latex. Still another interesting process is that of Professor Daner for *Castilloa*, in which foreign substances (particularly those of an albuminous nature) are separated by dilution.

Electrical coagulation* in which the rubber is removed in the form of a band, has also been adopted.

THE FRANK-MARCKWALD PROCESS.

The process of Dr. Frank and Dr. Marckwald is based on the simultaneous employment of dilution and heat, in conjunction with suitable chemicals. It is founded on the injection of latex in a thin jet into a much larger quantity of boiling water. The separated portions almost immediately thrown off are taken out of the water, rinsed, and drawn through rolls with the object of removing the water they contain and preparing them for drying. The rinsed or drawn slabs can, if desired, be blocked while wet.

Suitable acids are recommended for various kinds of rubber (such as citric acid, purub, etc.), formaline being specially mentioned in connection with *Funtumia*. These acids are previously added to the diluted latex. The active principle in this process is the rapid and intense solidification, while the albumen is at the same time separated.

In Dr. Frank's opinion, this process is the most satisfactory yet invented for *Funtumia* and *Ficus*, as well as, so far as experience goes, for *Manihot* latex. The latter coagulated in East Africa on a different system, has not produced satisfactory qualities of rubber.

In view of its complicated nature, it is impossible to do more than outline Dr. Frank's detailed and comprehensive treatment of the subject of coagulation, as indicating what is already known

regarding it, with a view to its further discussion. His investigations and those of his associate, Dr. Marckwald, are still being continued in that interesting field of research.

SOUTH AMERICAN TRADE IN RUBBER GOODS.

FROM the views expressed in a recent article by the "Gummi Zeitung," the progress made by Germany in South American markets, is largely due to the active efforts of the large Hamburg export houses. The German rubber industry profits by the generally good reputation of German goods.

To use the words of the journal itself:

"England is an important competitor in South America. The most important competitor with which the German rubber industry will have, and, in fact, now has to reckon, is, however, the American rubber industry.

"While all that the United States is now doing in South America is more or less of an occasional character, * * * this competition will very soon increase. * * * The American industry is in many cases better situated as to delivery than that of Germany. * * * It can use in a remarkable manner the existing steam communications between the southern ports of the United States and Venezuela, Brazil, etc."

Brazil, it is added, offers the most extensive possibilities, notably as to furnishing the rubber parts used in the construction of machinery, now being largely produced in that country. Automobile tires meet with a good and regular sale in Brazil, the same remark applying to Argentina, Uruguay and Chile. A steady demand likewise exists in all these countries for solid motor-truck tires. The imports of motor vehicles by South American countries notably increased last year.

Rubber goods for electrical purposes come from various countries, while insulating material is chiefly imported from Germany, on account of the marked development of that branch of German industry.

Argentina has developed agriculture in a marked degree, which, it is remarked, affords an opportunity for the rubber industry to furnish certain accessories for agricultural machinery. Rubber hose for purposes of irrigation are in regular demand, the same conditions applying to other South American countries.

Chile and Peru continue good customers of the German rubber manufacturing industry. The opening of the Panama Canal will naturally increase competition for the trade with those countries.

In this connection, it is of interest to recall the total figures of American rubber goods exports to South America, as recorded in the statistics published by THE INDIA RUBBER WORLD in December, 1911 (page 119):

	U. S. Exports of Rubber Goods.	Population.
Brazil	\$150,465	19,910,646
Argentina	137,460	7,000,000
Chile	72,110	3,249,092
Uruguay	42,689	1,111,758
Peru	36,122	4,500,000
Colombia	23,017	4,500,000
Venezuela	18,812	2,591,000
Ecuador	13,237	1,500,000
British Guiana	5,980	300,000
Bolivia	2,053	2,267,935
Dutch Guiana	919	70,007
Paraguay	51	635,571
Total	\$502,915	47,636,009

* The electrical system, Coe's rolls, was described in THE INDIA RUBBER WORLD 1911, Vol. 1, No. 447.

Rubber Used in the Brewing Industry.

IT probably is not known to the average beer drinker that each time he quaffs his favorite beverage he pays toll to the rubber industry. Even if he had such knowledge, it would make little, if any, difference with the quantity of beer he would drink. Yet the brewing industry annually contributes probably several millions of dollars to rubber, in this country alone. No modern brewery can produce beer without the aid of rubber. The uses of rubber by the brewer are as varied as they are essential. The greater part of the rubber used in a brewery is in the form of hose, though the rubber used for gaskets and washers is no small part of the total expense that the brewer must pay for rubber in order to do business.

Owing to the necessity of having everything scrupulously clean about a brewery, it is necessary to have plenty of hose for water,



REVERE BREWERS' HOSE.

With the hose of that class the concrete floors are washed several times each day, and everything else that may be cleaned with clear cold water is washed as frequently as occasion demands. For that work a hose one inch in diameter is used. Such hose is almost invariably of the four-ply class, and continues in active service longer than the hose used for other purposes in a brewery. Nevertheless the continued use, and the scraping about the concrete floors has a constant tendency to wear out the hose, with the result that the item of expense for that kind of hose is far from being infinitesimal each year in any brewery. When one stops to consider the number of breweries in this country it is not difficult to obtain some idea of the cost to the brewers of hose for this purpose alone.

Another kind of hose which is quite as necessary in a brewery is that specially constructed hose through which the beer passes on its way to the tanks. True, much of the distance which the beer must travel is covered by means of copper pipes, but there are sections of the way where the rubber hose is much more convenient for the brewer, and the additional expense of a less permanent thoroughfare is deemed worth while by the beer maker. Such hose is known in the rubber trade as brewers' hose. The cover of the brewers' hose is heavy and made of a compound that resists wear and abuse. The lining is heavy, and similar in its nature to steam hose. The inner tube is made extra smooth to prevent the beer from foaming and frothing. Some brands of brewers' hose are four-ply, but many brewers use a five-ply hose for a beer channel, believing that the stronger hose is a better investment, though it costs more to purchase. The size of brewers' hose varies from one and one-half inch to two inches.

A third kind of hose used in a brewery is that manufactured for the purpose of conveying compressed air into the big tanks which hold from 300 to 500 barrels of fresh beer. The chemical nature of beer is such that it is necessary to keep it under pressure to prevent it from "going flat." The pressure necessary is provided by compressed air which is forced into the tanks through compressed air hose. As there seem to the average rubber expert to be numberless giant tanks in every brewery, one may readily believe there are many miles of compressed air hose used in the breweries of the United States. As the life of such

hose, depending on its care and usage, is far from being indefinite, the annual contribution of the brewers to the rubber trade for compressed air hose alone is considerable. It is impossible to obtain an accurate estimate in dollars and cents, but, as heretofore set forth, the cost of hose of the various classes used in the breweries in this country makes an annual total which is important to the men interested in rubber.

The tanks, or mammoth barrels, used to hold the beer in the breweries before it is put in casks or small barrels, are made of wood or steel. There is a divergence of opinion among brewers in regard to whether wood or steel is the better material from which to have these tanks constructed. Formerly all of the tanks were made of wood, and many brewers believe wood has properties which add to the beer. Many beer drinkers prefer beer "drawn from the wood," or drawn direct from the barrels in which it is shipped by the purveyor of the beverage to the consumer. Because of their greater durability, however, steel tanks have been installed in many breweries. Not a few brewers use both kinds of tanks in their establishments, keeping the wooden tanks in use as long as possible, but installing steel tanks whenever it is necessary to put in new ones, either because of an enlargement of their plant or to renew worn-out wooden tanks. Both varieties of tank must be cleaned within frequently in order to produce the best results. For that purpose it is necessary to have a manhole on the side of each tank near the bottom. To a man who has not been employed in a brewery or on a modern battleship, these holes seem too small to admit the body of a full grown man, and it is safe to believe that men with the rotund fronts, seen on some beer drinkers, are not able to squeeze through, any more than a camel can go through the eye of a



GOODRICH BREWERS' HOSE.

needle. The holes, however, are made to admit men into the tanks, but, unless the manholes are hermetically sealed, or what amounts to such closing, it would be better not to have the tanks cleaned and to discard them after they had become too foul to use. Otherwise the leakage at the manholes would spoil all the scientific work of the brew-master. The manholes in the wooden tanks can be closed tightly without the aid of rubber, but it is necessary to use rubber gaskets to prevent leakage around the manholes of the steel tanks. These gaskets are made of fairly

hard rubber to prevent them from being ground out by the metal. By the use of the gaskets the tanks are closed as securely as if the manhole did not exist. Notwithstanding the skill with which such gaskets are made, however, they are far from being indestructible. In the nature of things, as soon as they become worn, it is necessary to renew them. Hence the item of expense for rubber gaskets for the steel tanks is not a small item of the annual expense in breweries.

The modern brewery appears to have more pipes than a cathedral organ loft. Because of the pressure under which the beer must be kept to prevent it from becoming "flat," all connections in the pipes in a brewery must be as air- gas- and water-tight as the pipes themselves. For this purpose hundreds of rubber washers are used in every brewery. The nature of the work demanded of these washers is such that it is cheapest, in the long run, to use only the best rubber. A single rubber washer may be bought at a trivial expense, but when the thousands used in the breweries in the United States are taken into consideration, it can be readily understood that the breweries make the rubber washer business a profitable one. Apart from the use of rubber washers at pipe connections, a larger and superior kind of rubber washer is used on the bushing at the outlet of each tank, from which is drawn off the water used in cleaning the interior of the tanks.

In connection with the cleaning of the tanks it is necessary to use an electric light in the interior. An incandescent lamp of fairly high candle power is used. That no water may touch those parts of the lamp where a short circuit would result from such moisture, the working parts of the lamp and the heavily covered wire for two feet from the lamp are covered with rubber. With such a covering, the man in the tank can spray the interior surface of the tank without fear of being left in darkness. The rubber used for lamp coverings is a comparatively small part of the rubber expense in a brewery, but in a consideration of the uses of rubber in the brewing industry it is by far too large to be unworthy of being taken into account.

In connection with the cleanliness which a brewery must possess, more than a word in passing is necessary to explain an interesting little device for the purpose of cleaning the pipes and hose. It consists of a spiked rubber ball which is forced through the pipes and hose by the pressure of water. The balls are made of a circumference which makes their passage through the pipe or hose snug. These balls are for the most part two or three inches in circumference, with spikes three-sixteenths of an inch long. They do the work required of them effectively and expeditiously, and are no unimportant part of a brewery equipment.

Another and quite notable item of a brewery equipment in which rubber plays an important part, is a safety closing device. In the non-technical language of a brewer's plumber, it consists of a brass mounted glass valve in which a rubber ball may play from one end of the valve to the other. The ball can be held in one end of the valve by means of a screw. The purpose of this safety arrangement is to shut off the compressed air pressure from the beer, after the beer has left the tank on its way to be drawn into the barrels in which it is shipped from the brewery. By the time the beer is ready for shipment, it has accumulated

enough gas so that it is inadvisable to continue the compressed air pressure. Without the safety device it would be necessary to have some more cumbersome arrangement, probably with a man to watch it, to prevent the tank from being emptied of everything it contained as well as the beer. The safety device, by means of the little rubber ball, stops the flow of everything after the last of the beer has passed from the tank. Besides the prevention of too much pressure on the beer in the barrels, the device also prevents the compressed air in the tanks from forcing the yeast, which has settled in the bottom of the tanks, through the pipes into the barrels. If the yeast was permitted to enter the barrels which are sent by the purveyor to the consumer, the result would be a cloudy beer which the consumer would assert, and assert rightly, was full of sediment. Such beer would neither be pleasing to the eye nor palatable.

Many miles of rubber belts are used in the breweries of this country. The brewing industry in the United States is managed on such a gigantic scale that machinery is used wherever possible. The heat, cold and moisture in the atmosphere of a brewery are such that rubber belting is a necessity where beer is made.

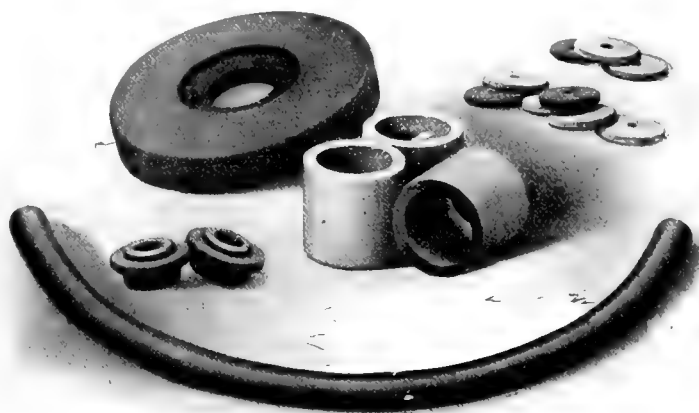
Rubber belting is an important part of the rubber trade, but is a subject by itself, yet it must be taken into consideration in connection with the subject of rubber used in the brewing industry. Next to the cost of the various kinds of hose used in a brewery the rubber belting probably costs the brewer more than anything else made of rubber that he uses in his establishment.

Asked if there were anything else, not here-

inbefore mentioned, which causes the brewer to pay tribute to rubber, Mr. Max Papai, brew-master of the Lion Brewery of New York City said that the rubber automobile tires and rubber horse shoes were no small expense. The heavy auto-trucks wear out many tires annually in carting the beer from the brewery, and the hundreds of horses used by the brewers in New York City alone for the same purpose wear out almost innumerable rubber horse shoes in the course of a year. That the rubber story in connection with breweries may be complete, it should be mentioned that, owing to the moisture about such a plant, it is customary to have the offices of such establishments well equipped with rubber mats.

The foregoing may give some idea of the importance of the brewery industry to the rubber trade. It should at least prove the proposition that every glass of beer pays its toll to rubber, even if that toll is only a small fraction of a cent. There have been various estimates of the quantity of beer consumed in this country, whose people are said to be a beer drinking nation. All of the estimates seem gigantic and almost beyond belief. It is in the multiplication of the fraction of a cent toll on each glass of beer which rubber exacts, that the grand total of income that rubber receives from the breweries may be obtained. Under existing conditions there could be little beer without rubber. Fortunately the converse is not true.

Brewing is the ninth industry in size in New York City. Its annual value is over \$63,000,000. New York brews one fifth of all the beer and ale produced in this country. It contains 37 different breweries. The annual value of the brewing industry in New York State is \$93,000,000.



GOODRICH BREWERS' AND BOTTLERS' SUPPLIES.

DETERIORATION IN QUALITY OF BREWERS' HOSE.

IN a recent address before the technical section of the local Experimental Brewery of Berlin, Dr. G. Bode, of that city, remarked that any one who has for years been examining the rubber hose used by brewers, will have noticed an increasing deterioration in quality. For this circumstance he considered the brewers as well as the rubber manufacturers are to blame. A



RINGS FOR ICE AND REFRIGERATOR MACHINERY.

system of economy prevails in the brewing industry. Formerly it was thought that only the best appliances could be used for the production and preservation of a good quality of beer. Now, in purchasing rubber articles their durability is less regarded than their price.

The simple consideration of the question will show that this course is not right. A good quality of rubber hose, with a life of perhaps six years may be dear, but an inferior grade which only lasts three years, while a little lower in price, is not cheaper in proportion to its reduced durability. Inferior qualities of hose are more easily torn, when they become a source of infection. While part of the blame thus falls upon the brewer the manufacturer, who has lowered his quality, is also to blame.

Rubber manufacturers, it is remarked, used at one time to make a specially high grade hose for brewers, which, they claim, they cannot afford to do at the prices now current. A price is fixed on as low a basis as possible, in accordance with which the



PUMP VALVES.

article made is compounded. The manufacturer is obliged to deliver an inferior product if he is not to lose money, while the increased necessity for repairs is a loss to the brewer.

Dealing with the question of restricting this evil and of the properties called for in rubber hose or discs, Dr. Bode remarks that it is difficult to find a property of rubber goods which can be expressed by a standard. The German navy used to prescribe certain compounds but has now given up the plan, which Dr. Bode considers is of little practical use.

It is further stated that rubber substitutes are often mixed with rubber for the purpose of cheapening the product, but the

compound obtained is not homogeneous as the substitute can be extracted by pressure. It can also be dissolved by the beer, imparting a taste of a rubbery character. The use of reclaimed rubber as a substitute for part of the crude rubber Dr. Bode considers allowable, provided that the former contains no lead. As the beer comes into contact only with the interior of the hose it is suggested that an ideal article could be obtained by using Pará rubber for the inner layer, while the external layers might be composed of a less valuable material. In any case the hose should be of a character to resist too rapid wear.

In conclusion Dr. Bode expresses the hope that the increasing production of plantation rubber will tend in the direction of steadying the market. Should this result be attained, the manufacturers will again be able to make the old "brewers quality," to which reference has been made. He adds that it lies with the makers to produce these better qualities which would certainly prove popular; such an improvement of quality being to the advantage of manufacturers as well as to the profit of brewers.

In a later communication, Dr. Bode supplements his preceding remarks, expressing the opinion that while the deterioration in quality of brewers' hose and bottle discs, is partially due to the action of the brewers and partially to that of the manufacturers, it may be likewise in part attributed to the dealers in the articles named.

Without modifying his previous approval of the use in their manufacture of reclaimed rubber free from lead, he remarks that rubber substitutes should as a rule be avoided for that purpose. While small quantities and even certain qualities of substitutes may not exercise any influence upon the beer, he asks whether, with the numerous grades on the market, anyone can be sure the substitute used will not produce any effect. For the above reason, Dr. Bode has constantly recommended that brewers use only qualities free from any admixture of substitutes.

Brewers' hose, to be serviceable, should, he also remarks, stand proper disinfection. If the texture suffers from this cause, he considers the hose should be rejected. He further recommends the adoption of several standards of quality; the prices of which would necessarily vary with the market fluctuations of the crude material.

Particular care should be taken with the interior surface of hose, with which the beer comes in contact. This he specially connects with the possible bursting of inside seams and the risk of the consequent infection of the beer.

MEETING OF THE AMERICAN CHEMICAL SOCIETY.

A meeting of the Council of the American Chemical Society will be held in New York on the evening of Monday, September 9, 1912, to consider changes in the constitution rendered necessary by the growth of the society.

A general meeting of the society will be held on the Wednesday following, September 11, in the Doremus Lecture Theatre of the College of the City of New York, to pass upon the action taken by the Council.

The president and secretary of the society urge its members, of whom there are now 6,100, making it the largest in the world, to hurry in their applications for membership in the Eighth International Congress. This membership carries with it the privilege of getting the printed proceedings of that Congress, which are considered very valuable by the chemical fraternity. Dues for membership in the Congress should be sent to W. J. Matheson, Treasurer, Eighth International Congress of Applied Chemistry, 182 Front street, New York City, New York.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

The Imperial Institute at the N. Y. Rubber Exposition.

GREAT interest has been aroused by the announcement that the directors of the Imperial Institute of London have consented to send to the Rubber Exposition, to be held in New York in September, an extremely fine collection of rubber grown in every British rubber-producing country, in charge of a special commission.

The Imperial Institute is one of the most important institutions of the British Empire. It was founded by the late King of England and His Majesty King George V. is at the head of it. The products and resources of the British Empire are shown at the Institute, and His Majesty has permitted the director, Prof. Wyndham Dunstan, M.A., LL.D., F.R.S., to prepare an exhibit for the New York exhibition.

The object of this exhibit is to illustrate the rubber resources of the British Empire by means of specimens from the collections of the Imperial Institute. The exhibit includes (1) herbarium specimens of the principal rubber-yielding plants and (2) representative samples of rubber from the following countries: India, Ceylon, Straits Settlements and Federated Malay States, British North Borneo, Papua, Fiji, Gambia, Sierra Leone, Gold Coast, Northern Nigeria, Southern Nigeria, Anglo-Egyptian Sudan, Uganda, East Africa Protectorate, Zanzibar, Nyasaland, Natal, Transvaal, Rhodesia, Seychelles, British Guiana, British Honduras, Jamaica, Trinidad, Dominica, St. Lucia and Bahamas.

The section devoted to each country will be provided with a descriptive label giving general information regarding the rubber-yielding plants which are indigenous to, or are being cultivated in, the country, and statistics of the rubber production during the last ten years.

The Institute's contribution to the Exposition will include the following:

LIST OF EXHIBITS.

I.—HERBARIUM SPECIMENS OF RUBBER PLANTS.

- Hevea Brasiliensis*, the Pará rubber tree.
Manihot Glaziovii, the Ceara rubber tree.
Castilloa elastica, the Central American rubber tree.
Funtumia elastica, the West African rubber tree.
Landolphia Owariensis,
Landolphia Heudelotii, } African rubber vines.
Landolphia Kirkii, }
Landolphia Thollonii, } African shrubs yielding root-rubber.
Clitandra Henriquesiana, }
Carpodinus hirsuta, African vine yielding paste rubber.
Mascarenhasia elastica, the Mgoa rubber tree of East Africa.
Sapium Jenmani, the Sapium rubber tree of British Guiana.
Forsteronia Floribunda, Jamaica rubber vine.
Alstonia plumosa, Fiji rubber vine.

II.—RUBBER SPECIMENS.

INDIA.

- Ficus elastica* rubber—Block, Scrap.
 Pará rubber—Biscuits.
 Ceara rubber—Biscuits.
Castilloa rubber—Sheets.
Cryptostegia grandiflora rubber—Lump.

CEYLON.

- Pará rubber—Biscuits, Sheets, Crêpe, Block.
 Ceara rubber—Biscuits, Sheets.
Castilloa rubber—Biscuits, Sheets.

STRAITS SETTLEMENTS AND FEDERATED MALAY STATES.

- Pará rubber—Biscuits, Sheets, Crêpe.
Ficus elastica rubber—Crêpe, Sheets.

- Willughbeia firma* rubber (Gutta Gerip)—Crêpe.
 Gutta Percha—Gutta Taban Merah (*Palaquium Gutta*).

BRITISH NORTH BORNEO.

- Pará rubber—Sheet.
 Gutta Percha—Gutta Merah, Gutta Tagah, Gutta Lichak.

FIJI.

- Alstonia plumosa* rubber.

PAPUA.

- Ficus Rigo* rubber.
 Vine rubber.

GAMBIA.

- Landolphia Heudelotii* rubber—Balls.
Ficus Vogelii rubber—Balls, Lump.

SIERRA LEONE.

- Funtumia elastica* rubber—Lump, Sheets.
Landolphia rubber—Balls.

GOLD COAST.

- Funtumia elastica* rubber—Lump, Biscuits.
Landolphia Owariensis rubber—Balls.
Ficus Vogelii rubber—Biscuits.
 Pará rubber—Biscuits.

SOUTHERN NIGERIA.

- Funtumia elastica* rubber—Lump, Biscuits.
Landolphia Owariensis rubber—Balls (Lagos Niggers).
 Pará rubber—Biscuits, Scrap.
 Ceara rubber—Biscuits, Balls, Scrap.
Ficus elastica rubber—Biscuits.

NORTHERN NIGERIA.

- Funtumia elastica* rubber—Lump.
Landolphia rubbers—Cluster rubber, White ball rubber, Vine rubber, Jan Donko (Red rubber), White flake rubber.

SUDAN.

- Landolphia Owariensis* (var. *tomentella*)—Biscuits, Balls.
 Ceara rubber—Sheets.

UGANDA.

- Funtumia elastica* rubber—Biscuits, Sheets.
Landolphia Dawei rubber—Biscuits, Crêpe.
Clitandra Orientalis rubber—Biscuits, Sheets, Crêpe, Balls.
 Pará rubber—Biscuits, Crêpe, Scrap.
 Ceara rubber—Crêpe.

EAST AFRICA PROTECTORATE.

- Landolphia Kirkii* rubber—Balls.
Landolphia Ugandensis rubber—Balls.
Mascarenhasia elastica rubber—Balls.
 Ceara rubber—Sheets.

NYASALAND.

- Landolphia Kirkii* rubber—Balls.
 Ceara rubber—Biscuits, Balls.

ZANZIBAR AND PEMBA.

- Landolphia Kirkii* rubber—Balls.
Mascarenhasia elastica rubber—Balls.
 Pará rubber.
 Ceara rubber.
Castilloa elastica rubber.

TRANSVAAL.

- Landolphia* rubber—Scrap.
Conopharyngia elegans—Block.

NATAL.

Landolphia Kirkii rubber—Balls.
Euphorbia Tirucalli—Block.

RHODESIA.

Landolphia Kirkii rubber—Balls, Spindles.
 Chimeya rubber.
 Root rubber (showing stages of preparation).

TRINIDAD.

Castilloa elastica rubber—Sheet.
 Pará rubber—Biscuits.

BRITISH GUIANA.

Sapium Jenmani rubber—Biscuits, Lump, Balls.
Mimusops globosa—Sheet balata.

BRITISH HONDURAS.

Castilloa rubber.

BAHAMAS.

Cryptostegia grandiflora rubber—Biscuits.

ST. LUCIA.

Castilloa elastica rubber—Biscuits.

DOMINICA.

Pará rubber—Biscuits.
Ficus elastica rubber—Biscuits.

JAMAICA.

Forsteronia floribunda rubber.

THE NEW YORK RUBBER EXPOSITION—A FEW OF ITS INTERESTING FEATURES.

RUBBER matting, specially made for this exhibition, will be laid down at the main entrance, and in different parts of the building.

A rubber roadway will be put down in the Exhibition hall and a rough-shod horse will be working on it.

Moving pictures depicting the collection and preparation of rubber in the Federated Malay States will be shown by the government of that country.

A tour through a rubber mill may also be taken by invitation of a large rubber concern.

The display of the United States Rubber Co. will be exceptionally fine.

The Buffalo Foundry & Machine Co., the Farrel Foundry & Machine Co., the Curtis & Marble Machine Co., the J. P. Devine Co., the United Shoe Machinery Co., John Royle & Sons, Werner & Pfleiderer, and Turner, Vaughn & Taylor Co., will have large exhibits of machinery in motion.

One manufacturer will show a circular loom weaving cotton fabric for fire hose.

The rubber reclaimers and manufacturers of compounds will make large displays; and one will have a working exhibit.

THE INDIA RUBBER WORLD'S \$1,000 cup to be awarded at the London Rubber Exhibition of 1914 for the best method of extracting the latex from *Castilloa elastica*, will be on view.

Other trophies awarded at the 1911 London Rubber Exhibition will be exhibited, with samples of the rubber that won the prizes.

Season tickets, at \$3, will be issued, entitling the holders to admission on Press View Day, the opening ceremony, conferences and at all times when the exhibition is open to the public. They also include membership in the Exhibition Rubber Club.

A number of the foreign delegates will put in an appearance early this month. Dr. Dahne, the commissioner for the federal government of Brazil will arrive in a few days. That country has

secured 7,500 square feet of space. Manáos is sending thirty tons of rubber; Matto Grosso ten tons; Acre ten tons; and this will be supplemented by full displays from Pará and other States. The Brazilian section will be a most complete and elaborate one.

The erection of the Ceylon government stand is now well advanced and the exhibit will be a very attractive one, covering some 2,000 square feet of space.

Invitations have been issued to the purchasing agents of the railroads and many leading chemists to attend the International Conference and a number of replies have been received.

Preliminary arrangements for functions, which are subject to alterations and additions will be as follows:

PRELIMINARY ARRANGEMENTS FOR RUBBER EXPOSITION FUNCTIONS.

(Subject to alterations and additions.)

Sunday, September 22, afternoon or evening—Press View and Lunch.

Monday, September 23, at noon—Opening Ceremony. At 2 p. m.—Exhibition open to the general public.

Tuesday, September 24, 11 a. m.—Meeting of the International Conference—President, Mr. H. C. Pearson; secretary, Dr. F. Dannerth.

Wednesday, September 25, afternoon—Special Invitation Day by the Commissioner for the Government of Ceylon.

Thursday, September 26, afternoon—Special Invitation Day by the Commissioner for the Federal Government of Brazil.

Friday, September 27, afternoon—Special Invitation Day by the Commissioner for the Federated Malay States.

Saturday, September 27, evening—Exhibition Supper Club—10.30 p. m., special evening.

Note: The Supper Club will meet at the close of the Exhibition each night, at supper, and exchange views on subjects of mutual interest.

Tuesday, October 1—Rubber Exhibition Banquet.

Thursday, October 3, Closing Day, 10.30 p. m.—Supper Club, special night.

Among the exhibitors at the forthcoming Rubber Exposition to be opened on September 23, at the Grand Central Palace, will be the Dutch Guiana Culture Co., of which L. C. Lawton, of the Chicago Rubber Co., is president and treasurer.

The property of the Dutch Guiana Culture Co. consists of 12,000 acres planted to date, with 45,000 *Hevea* and 121,000 Liberia coffee trees.

J. R. C. Gonggrijp, superintendent of the company, will come to New York for the exposition.

COMMISSIONERS FOR THE FEDERAL GOVERNMENT OF BRAZIL.

The Federal Government of Brazil has appointed the following commissioners to represent Brazil officially at the forthcoming International Rubber Exhibition: Dr. Eugenio Dahne, Commissioner General, representing the Minister of Agriculture, Industry and Commerce in the United States; Count Candido Mendes de Almeida, President of the Chamber of Commerce and Director of the Commercial Museum of Rio Janeiro; Dr. Cerqueira Pinto, rubber expert from the Department of Agriculture, Industry and Commerce of Rio Janeiro. Three assistant commissioners, rubber experts, have also been appointed.

460 MILES OF WIRE IN ONE BUILDING.

The new Woolworth skyscraper in New York City, which breaks all records up to the present time for altitude, having some 52 stories, will contain 460 miles of copper wire in its various cables. If this copper wire were all in one piece it would reach from New York nearly half way to Chicago.

The Rubber Club of America

THOSE who know the Rubber Club of America need not be told, but other members of the rubber and allied trades may not know so well, that when this club has an outing there is always something doing. There certainly was a great deal doing on Tuesday, July 16, when the club held its annual outing at Peddock's Island, in Boston harbor. This island was chosen by the committee because it combined all the advantages



ARRIVAL AT PEDDOCK'S ISLAND.

necessary for success. In the first place it was twenty degrees cooler than Boston's thermometric attempts to sun-strike the population. Second: there was a good baseball field, and near it a comfortable covered observation stand. Third: there were

manly officers of the coast artillery, the welcome they gave the rubber men, the cool sea breezes, the absence of flies and mosquitoes, the surf-bathing facilities, and other things too numerous to mention.

At 1:30 p. m. the steamer "S. S. Griswold" started for a trip down Boston harbor with 150 members of the club and their guests. The band played, and the excursionists cheered. The hot streets and humid air were left behind, and the salt sea-air and ozone made the trip a delightful one. In an hour the landing was made at Peddock's Island, where the company headed by the band marched to the ball ground, where the "Red Sox" and the "Giants" were soon pitted against each other for the mastery.

Here are the personnel of the two teams, and the score of the game

RED SOX.		GIANTS.	
	Runs.		Runs.
R. L. Chipman, p.	1	James Clifford, p.	1
H. G. Tyer, c.	0	M. G. Hopkins, c.	0
W. L. Pitcher, 1b.	0	C. R. Russ, 1b.	1
J. E. Odell, 2b.	1	Ralph Lowenthal, 2b.	0
P. E. Young, 3b.	0	H. C. Benchley, 3b.	0
G. A. Clapp, ss.	1	D. Feinburg, ss.	0
Lawrence Page, l. f.	2	E. L. Phipps, l. f.	0
R. L. Rice, c. f.	0	R. W. Harris, c. f.	1
L. R. Lampie, r. f.	0	J. Walker, r. f.	0
	5		3

It was a hotly contested game, and Umpire F. C. Hood



ON THE HOTEL STEPS OF PEDDOCK'S ISLAND.

good grounds for athletic sports. Fourth: there was a good beach with plenty of seaweed, clams, lobsters and rocks for the proper concoction of a clambake. Fifth: but why enumerate further? For these are enough without counting the gentle-

found his duties extremely strenuous. There were some very brilliant plays, Lampie's catch and double play perhaps being the most sensational. Only five innings were played, and these were voted fully enough for "gentlemen players."

over the stones, six or eight barrels of clams spread over, then the other "fixins" and seaweed piled on top.

Two long tables had been spread in the open, in full view of the ocean, the setting sun and the crescent moon. Crude



THE FINISH OF THE 50-YARD DASH.

benches ran along each side of the tables. The company—with appetites whetted by the salt sea air—were served with chowder, steamed clams, clam fritters, sausages, sweet potatoes, chicken, lobster and other things eatable and drinkable. They did full justice to the repast, and no one asked in vain for another helping.

We had almost forgotten to report that a golf tournament was played off at the country club in Brookline in the morning; the contestants, their handicap and score being as follows:

	Gross.	Handicap.	Net.
R. L. Chipman.....	97	9	88
Geo. A. Clapp.....	113	18	95
J. F. Dunbar.....	105	17	88
R. S. Hodges.....	116	8	108
F. C. Hood.....	85	0	85
M. G. Hopkins.....		No card	
F. H. Jones.....	94	11	83
Jas. H. Learned.....	105	14	91
Herbert C. Mason.....		No card	
Arthur W. Stedman.....	105	10	95
Henry C. Benchley.....	113	16	97
W. L. Wadleigh.....	100	17	83
Philip E. Young.....	85	8	77
L. B. Page.....	88	0	88

The award of the various prizes was an informal affair, each winner being handed a neatly wrapped package, which at the emphatic behests of the crowd he immediately opened and exposed to view. The prizes were well selected, valuable and useful, and showed the good taste of the committee.

The winners were as follows:

Golf—Best net, P. E. Young, afternoon coffee set and tray. Second net, to be worked off between Messrs. Jones and Wadleigh, a silver lemonade mixer. Best gross, F. C. Hood, veranda lemonade set. Second gross, L. B. Page, veranda lemonade set.

Sprints—First, R. L. Chipman, claret pitcher. Second, W. McPherson, silver telescopic drinking cup.

Potato Race—First, F. R. McKenna, humidor cigar jar. Second, R. L. Chipman, set of automobile glasses.

Quoits—First, R. L. Hodges, parlor clock. Second, F. T. Ryder, silver trimmed carafe.

There was a delay of half an hour or so, owing to the low tide, but all the better for the sail up the harbor in the cool of the evening, with the electric lights of the summer resorts coming into passing review; while the band played, the excursionists sang, or talked over old times and business until the wharf at Boston was reached and the company parted, each vowing that this outing had been the "best ever" of all those held by the Rubber Club of America.

And well deserved would be a vote of thanks to all those who worked hard for the success, especially those two who were the hardest workers, Robert L. Rice and Charles A. Coe.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

THE rubber trade generally is about normal for the season. In crude rubber, trade lacks snap, and consumers confine their purchases mainly to immediate needs. There seems to be an impression that prices will decline, though just when is uncertain, and this is given as the main cause for present light trade. Makers of mechanical goods have had a good season, but just now things have quieted down somewhat. Clothing dealers report a good season. Druggists' sundries are selling as usual. Boots and shoes have been ordered away ahead of last year or the two previous ones, but this is principally on account of the return of the companies to the policy of allowing an extra discount for early orders. This has naturally crowded more business into the first six months of the year, at the expense of the late summer and early fall orders, which will be very light until the cold fall rains begin. Reclaimers are busy and report a good call for their product.

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The executives of the Walpole Rubber Co. were tendered a reception and banquet recently by the Board of Trade of Foxboro, in which town the Walpole Rubber Co. has leased an extensive plant with the privilege of purchasing in two years. The reception was held at the Bethany Congregational Church, and this was followed by a dinner at Masonic Hall, served under the auspices of the ladies of the Order of the Eastern Star. There were many addresses by prominent citizens, and invited guests. Superintendent Frederick J. Gleason in a ringing address reviewed the events which led the company to decide on the removal of its tire department to Foxboro. Incidentally he referred to the day as being the twentieth anniversary of the starting of the business, he being the only survivor of the three founders. The whole affair was most enthusiastic, and the outlook is most encouraging for the building up of a splendid tire manufacturing industry in the substantial plant leased by the company.

* * *

Wallace G. Page, of the tire department of the Hood Rubber Co., is receiving two sets of congratulations from his many friends in and out of the rubber business. The first is because Mrs. Page has presented him a fine baby girl, who is thriving to the satisfaction of all. The other cause for congratulatory wishes, oral and written, is his splendid recovery from an operation for appendicitis. Mr. Page was chairman of the Sports Committee of the Rubber Club of America, but his sudden illness prevented his fulfilling the duties of that office at the outing last month, these devolving upon Robert L. Rice, of the Hood Rubber Co., to whom great credit is due for his able management of the sports and games on that occasion.

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The Boston Belting Co. has given the Capitol City Supply Co. the agency for the sale of its mechanical rubber goods at Charleston, W. Va.

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A. Staines Manders, manager of the International Rubber Exposition, to be held in New York next month, was in Boston several days last month, when he visited several prominent houses in the rubber trade, and conferred with his Boston representative, Quincy Tucker, quite well known as a traveler in rubber producing countries. Mr. Manders visited the Shoe and Leather Fair while here, and commented on its uniformity and general neatness of plan, but stated that the Rubber Exposition will allow exhibitors an opportunity for individual taste in design and arrangement of their displays.

* * *

Frederick T. Ryder, the newly appointed selling agent of the Consumers Rubber Co., returned about the middle of last month from quite an extended preliminary trip in the interest of that

company. While the full plans of the new management of this concern are not yet ready to be made public, it may be stated that new styles will be introduced, up-to date methods adopted, and with finer quality, larger assortment of styles and kinds, and a wider field, the new ownership and management will make this company a more prominent one in the footwear industry.

The Revere Rubber Co. is doing some extensive consumer advertising of its Spring-Step Rubber Heel, several expensive mediums of national circulation being given large and expensive advertisements. At the Shoe and Leather Market Fair, held in this city the middle of last month, a fine display was made of this specialty. A large picture of the factory was so arranged that a continuous stream of rubber heels flowed from the factory door into a big basket. At the front of the booth a Bunker Hill Monument covered with heels was kept revolving by an electric motor. "The House of the Spring Step Heels" was a model of a house built up of these heels and electrically lighted in the interior. There was a novel rubber plant which blossomed out in rubber heels. A handsome youth was dressed in continental fashion, who distributed neat gold-plated scaripins of Paul Revere with a Spring Step Heel.

George P. Whitmore, who has not been in the best of health for some time, was present at the fair one day, and received the congratulations of many visitors on the novelty of his exhibit. Mr. Gunlock, of Chicago, who has charge of the heel advertising of this company, was also a visitor.

* * *

Many of his friends were glad to see Secretary W. H. Gleason, of the Revere Rubber Co., at the outing of the Rubber Club of America on July 16. Mr. Gleason has been ill for nearly six months, and although not entirely recovered, is so much improved that he was able to grasp this opportunity to see many of his fellow members of the club and enjoy the outing in a quiet way.

* * *

The Tyer Rubber Co.'s new tire factory at Andover, is approaching completion, and the company expects to occupy it and begin operations in it early next fall. The demand for their tires is strong and growing more imperative every month, and the officials are regretting that the factory cannot be ready to turn out tires during the height of the automobile season.

* * *

Work on the Robert Dawson Evans memorial annex to the Art Museum in this city, an architect's drawing of which appeared in the INDIA RUBBER WORLD for June, last, is progressing rapidly. The excavation is completed, as are also the foundations of reinforced concrete. This work has been completed ahead of contract time, owing to more favorable conditions than were anticipated. The building is to be finished by March, 1914, and present indications point to its completion prior to that date.

* * *

The Foster Rubber Co., of this city, made a big hit at the recent Shoe and Leather Market Fair, by parading through the building at stated intervals their big black cat, or animated trademark. This cat, which stands over six feet high (measuring to the end of its perpendicular tail), was made by the property man of the Boston Opera House. The motive power is a man inside, who walks on all-fours, turns on the green electric lights in the eyes, arches the back and otherwise disports himself as a feline. The black cat is the trade-mark of this company's "Catspaw Heels" and every visitor who could be reached was tagged with a heel-shaped pin of celluloid, ornamented with a black cat. William Noll, the advertising manager of the company, was on duty during the seven days of the fair, pushing the heels into wider publicity.

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

THE Miller Rubber Co. have increased their capital stock from \$500,000 to \$1,000,000. Not long ago this company issued \$100,000 stock to stockholders at par and the same was immediately subscribed in full. Then \$100,000 stock was issued to stockholders at 150, and this has been mostly subscribed. The purpose of the sale of this new stock is to secure funds to build a new plant which will be located in Kenmore on the outskirts of Akron. The first new building is to be for dipped goods.

There has been a considerable rise in most rubber stocks in the last month, Goodyear Tire and Rubber Co. stock going as high as 340. President F. A. Seiberling, of the Goodyear Tire and Rubber Co., is quoted as saying: "I do not know the cause of the recent rise in Goodyear stock unless it is due to a speculative fever that has placed a fictitious value on most of Akron's rubber stocks, and which has no sound basis worthy of an investor's consideration."

"There is not the slightest foundation for these merger rumors, and if I understand the temper of the management, there is not the remotest possibility of the Goodyear being absorbed by any of them, and I am equally certain that there is no thought of its becoming an absorber. I regret exceedingly that such rumors are put out, as whether it is the purpose of those circulating them or not to boom the value of stocks, it has the effect of doing so, and makes for an unhealthy situation in our community."

"The basis of value of any stock is its intrinsic worth, its proven earning power and its trade prospects, but rumors as to deals have no place in fixing real values, and should not be considered by investors in forming their judgment."

"Any of the preferred stocks of the leading companies of Akron are sound investments, with earnings under them that can undoubtedly maintain their dividends; but the common stocks are variable in their earning ability, and though earnings in the past few years have been more than satisfactory, it is unreasonable to suppose that this position will be indefinitely maintained, since the business is becoming more intensely competitive daily."

* * *

Seventy members of the Indiana Four-States Tour, representing automobile manufacturers of Indiana spent Friday, Saturday and part of Sunday as guests of the rubber manufacturers of Akron. Complete arrangements had been made for their entertainment here. Soon after the party arrived, the members were taken to Young's Hotel, where a chicken and fish dinner was served.

With one exception there were no speeches. C. F. O'Leary, of Indianapolis, took occasion to thank the Akron manufacturers for the entertainment soon after dinner, pointing out that he was glad to see a spirit of co-operation among the business men of Akron, the same sort of co-operation, he said, that characterized the Indianapolis manufacturers and made the Four-States' Tour possible. After dinner the party left Young's and came to Akron, where a theatre party was given at the Casino.

Considerable excitement was created in Akron when the tourists arrived. The streets were lined with people who welcomed the Indiana party with cheers, and flags and bunting floated from practically every business house. The Indiana machines were decorated in a fitting manner and were piloted into Akron by a local car driven by G. Ben Motz, secretary of the Akron Automobile Club.

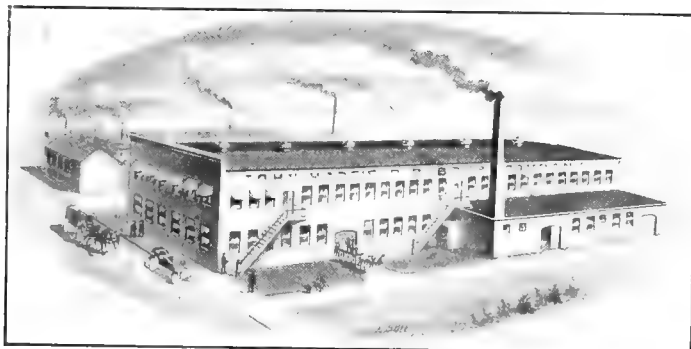
On Saturday morning the party was taken through the leading rubber factories. The afternoon was spent at the ball park, attending the Akron-Canton game. In the evening dinner was

served at the Portage Hotel. The party left Sunday morning for Canton.

The Four-States' Tour was adopted last year by Indiana automobile manufacturers as a novel way to advertise Indiana-made machines. The tour in 1911 was more or less of an experiment, the route being through Indiana, Illinois, Iowa and Michigan. It was such a great success in every way that it was decided to make the tour an annual event. This year the tour is being made through Indiana, Ohio, West Virginia and Kentucky.

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The Hadfield Rubber Co. has been incorporated under the laws of Ohio for \$10,000, fully paid up. John Hadfield is president and Hugh Hadfield is treasurer. The company has its office and shop at 911 Sweitzer avenue, Akron, Ohio. The parties comprising the company have been in the rubber busi-



JOHN HADFIELD RUBBER CO.

ness in Akron for almost four years. This company has an extensive dipped and molded goods trade and its business is growing rapidly, necessitating day and night shifts.

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The explosion of the gas envelope of Melvin Vaniman's airship, "Akron," which was wrecked at Atlantic City on July 2, is claimed by Charles Hillman to have been caused by having the escape valves of the gas envelope too close to the exhaust valves of the engine. Mr. Hillman says that there were six exhaust valves in the gas envelope by means of which the gas, when it became heated, was allowed to escape. These valves were placed three on either side of the envelope in a horizontal line slightly on the lower side of the bag. Four of the valves, fore and aft, were located directly over the exhaust from the engine, while the other two were just over the differential propeller. Consequently, when any one of the valves was opened, as was done by means of a string when the gas began to expand, there would be a strong rush of gas, and further, the high degree of inflation which would naturally cause the dirigible to make a rapid ascent, would all the more quickly bring the continuous exhaust from the engine into contact with the downward exhaust from the bag. It would seem from the rapid ascent of the "Akron" that she carried a full head of gas. Persons who witnessed the accident say that they saw Vaniman trying to retard his ascension by bringing the differential propeller towards the surface. When the engine failed to work, he resorted to the exhaust valves in an attempt to decrease the buoyancy of the airship and when he opened his forward valves, allowing a great volume of gas to rush through the large opening, the hydrogen gas was ignited by the exhaust from the engine.

Mr. Vaniman's later inventions were not a part of the original balloon "Akron," as they were evidently conceived after the "Akron" had been constructed.

For Walter Guest, Fred Elmer, George Bourillon, Calvin Vaniman and Melvin Vaniman, the men who gave up their lives in the explosion of the balloon "Akron" at Atlantic City on

July 2, we express the highest admiration, especially for their courage and their tireless and hazardous work in the solving of the problems of aerial navigation. The "Akron" was serving as a training school and experimental balloon for the working out of certain problems in aeronautics. Mr. Vaniman expected to build another balloon that would include all his inventions and those of the men who were working with him, and ultimately construct a balloon that would be safe for short or long flights, even for crossing the Atlantic Ocean when desired. These men were tireless investigators in their line of work. The plans and mechanism of every balloon ever constructed for aerial navigation were thoroughly examined by them. The mechanism of each was thoroughly gone into, even to the most minute detail. Many were improved upon, and made a part of the balloon "Akron." Many devices were invented, even after the "Akron" was constructed. Mr. Seiberling willingly financed this proposition and was a careful student, noting each improvement that was made by his faithful corps of aerial engineers. The loss of the lives of these investigators is a great loss to the present progress of aerial navigation and a loss greatly felt by the relatives and friends of the deceased.

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The Electric Rubber Reclaiming Co. of Barberton has commenced reclaiming rubber.

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The Firestone Tire and Rubber Co. has secured an insurance policy of \$500,000 on the life of Harvey S. Firestone, its president. The yearly premium on the Firestone policy is \$20,000. Mr. Firestone's health is of the best, this policy being taken out simply as a sound business proposition.

* * *

The Goodyear Tire and Rubber Co. has broken ground for a new building 400 by 80 and six stories high. This new building with other additions that the Goodyear company is making, will give additional floor space of 260,000 square feet. This marked enlargement will be used largely to take care of increase in its tire business.

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A. E. Williams, formerly with The Firestone Tire and Rubber Co. and The S. & O. Engraving Co., has become advertising manager for The Swinehart Tire and Rubber Co.

THE RUBBER TRADE IN TRENTON.

By a Resident Correspondent.

THE Thermoid Rubber Co., has installed a patent machine for the making of automobile tires, which the inventor claims will turn out six times as many tires per hour as are made now under the hand system. The Thermoid company is particularly busy just now, nearly every department working day and night shifts of men. The company is doing a fine business in the manufacture of brake linings, tires and tubes and belts, particularly belts. The demand for its brake linings for the auto trade is large. In the recent Indianapolis automobile meet, fourteen of the first sixteen cars to finish were equipped with the Thermoid brake lining. The hose department of the big plant is a trifle slack just now, a state of affairs general with the majority of the makers of hose in this vicinity.

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Quite a good many men have been honored by having their friends and associates celebrate their fiftieth anniversary. General Murray, treasurer of the Empire Rubber Co., Trenton, New Jersey, has just enjoyed a unique distinction because his associates—evidently being unable to wait another year—have celebrated in a signal way his forty-ninth birthday. On July 17, when General Murray appeared at the office of his company, he was asked to go into the hoseroom to inspect a new machine.

Arriving there he found practically all the employes of the Empire Rubber Manufacturing Co. and the Empire Tire Co. Thereupon the assistant superintendent stepped forward and addressed the General in an exceedingly complimentary way, and in behalf of the body of employes presented him with a handsome diamond ring, together with a parchment containing the signatures of all the contributors—practically all the people connected with the company. The General was visibly affected, and with reason. It is a great honor to be highly esteemed by one's own workmen. It is about the most infallible criterion of character there is.

General Murray, in responding to Mr. Stokes, the assistant superintendent's presentation speech, said: "This token will, to my mind and recollection, ever sparkle with your esteem and friendship. It is not the intrinsic value of this very handsome diamond ring, but your esteem which goes with it that affords me more pleasure than money could purchase. It is impossible for me to say any more than that I sincerely appreciate your manifestation of esteem and only trust it may continue for the rest of my years."

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Trenton's rubber industry is well represented in the summer colony at Spring Lake. John H. Broughton and Watson H. Linburg, of the United and Globe Rubber Co.; General C. Edward Murray, of the Empire Rubber Co.; Oliver and Robert Stokes, of the Thermoid Company; Charles and W. J. B. Stokes, of the Home Rubber Company; are summering at this seashore resort.

* * *

Local rubber manufacturers state that the outlook for a good season this fall and winter is particularly bright despite the usual pre-election complaints of the pessimistic element. The majority of the plants are running full handed, many working day and night shifts, particularly in the tire departments.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

IF the amount of "gumshoe" work in Chicago at present is any criterion the rubber trade could not be better. Third party talk and proposed tickets, hasty trips and conferences and general political activity, combine to make the season the most unique that ever preceded a presidential election. Consequently business in all lines has been partially lost sight of in the political maelstrom that envelops Chicago as the real center of the battle. Notwithstanding the well-understood conditions, there is no complaint from manufacturers or merchants, and both makers and jobbers of rubber goods appear to be enjoying an excellent trade.

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In spite of freakish weather through the month, the manufacturers and dealers all express satisfaction, and commodities in the rubber goods business continue to have brisk call. Some few announcements have been made that tend to make for greater confidence, and in common with other business men the manufacturers and retailers of rubber goods are anticipating unusual prosperity this fall.

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An increase of \$6,000,000, or 150 per cent., in the capital stock has been agreed on by the directors of the Republic Rubber Co., whose Chicago office is at 1732 Michigan avenue. No definite announcement has been made as to the amount of additional capital to be issued this year. It is understood, however, that the steady growth of the company's immense business will require new capital before another season.

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A contract has been entered into by the Knight automobile tire manufacturers with the Excelsior General Supply Co., 1432 Michigan avenue, whereby the latter is named as exclusive distributing agents for the Knight product in four States. The

supply company will have supervision of the sales in Illinois, Southern Wisconsin, Northern Indiana and Eastern Iowa. The Knight tire is said to be the highest-priced automobile tire manufactured. It is made in Canton, O. "More per tire and less per mile," is the slogan of the company, and although their product is sold at high prices, it is backed by an exceptional mileage guarantee.

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The first damage suit filed in Chicago as a result of the wreck and foundering of the giant steamer *Titanic* has been brought for the death of Abraham Willer, a former rubber clothing merchant in North State street. Willer went down on the ill-fated steamship and his widow has filed suit in the Superior court against the White Star Line Company for \$10,000. The widow and three children are the plaintiffs in the action.

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Fall buyers are overrunning the city and a very good percentage are boot and shoe dealers from various points through the central and western States. Wholesale boot and shoe firms report large orders. F. W. Campbell, secretary of the Western Association of Shoe Wholesalers, said: "Fall buying is already in full swing and prospects are that the wholesalers' sales will show an increase over all previous years. Late orders were the feature of last year sent in by the retailers to supply the unusual demand of late fall and winter, and this season the dealers are not to be caught napping."

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

A PERMIT has been granted to the Revere Rubber Co., of Providence to erect a five-story building on the east side of Eagle street, near Valley street, for storage purposes. It is to be of concrete and brick construction and will be as nearly fireproof as it is possible to make it.

The building will have all modern equipments and will be 72 feet from the ground floor to the roof. The frontage on Eagle street will be 77 feet. It will extend back 299 feet. C. Benson Wigton, of Boston, is the architect, and the Turner Construction Co. of New York, has the contract.

This structure is to provide storage place for tires, to replace the building which was recently burned. During the early part of July this company sent a check for \$500 to the Providence Protective Firemen's Relief Association as a mark of appreciation for the excellent work done in fighting the fire which cost the lives of two firemen and resulted in a loss of \$300,000.

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The Alice Mill of the Woonsocket Rubber Co. was the scene of a rather remarkable accident some time ago. Augustus D. Clark, who lives at 138 West School street, Woonsocket, fell three stories down an elevator well but rose and walked out of the place without assistance, apparently uninjured.

He is an employe in the shipping department, and had ascended to the third floor in the elevator. As he alighted he found that men were sprinkling the floor preparatory to sweeping. He made a quick leap to get back on the elevator which had continued on its way up, but slipped and landed feet first at the bottom of the shaft. The doctor was unable to find anything the matter with the man later.

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Terrence McCarty, formerly proprietor of The Consumers' Rubber Co., Bristol, and now its general manager for the Walpole Rubber Co., which has a controlling interest, has deeded the property to the latter concern. The papers were passed during the week of July 15.

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The new wire molding plant of the National India Rubber Co. at Bristol is nearing completion. The floors of the building where the machinery is to be placed have been strengthened. It

is expected that operations will be started within a few weeks. Bristol business men are pleased at the prospect of a big increase in the population of the little town.

Almost simultaneously with the extension of the plant of the Phillips Insulated Wire Works at Darlington, Pawtucket, comes a much needed improvement in that section of the city. The city Council has made an appropriation for curbing and otherwise improving Central avenue, which passes in front of the plant and is the main avenue of travel to and from the center of the city.

Henry J. Doughty, who for a number of years was prominent in rubber manufacturing circles in Rhode Island, has entered politics actively since the Chicago convention at which ex-President Roosevelt failed to secure the Republican nomination.

Mr. Doughty came into the public eye recently by attending a meeting of Roosevelt supporters in New York and signing for Rhode Island the call for a Progressive Party convention in Chicago on August 5. Since then Mr. Doughty has started plans for getting out nomination papers in this State to insure Mr. Roosevelt the privilege of having his name on the ballots here. Heretofore, Mr. Doughty has not been actively interested in politics.

He states that he was asked to sign the call for the Progressive convention by H. R. Lowe, of Providence. He is a warm admirer of the former chief executive.

THE RUBBER TRADE IN SAN FRANCISCO.

By a Resident Correspondent.

REPORTS indicate that business is averaging up fairly well, with some improvement over the same time last year. Yet a great many men are now away on their vacation trips, and as one man said, they are not missed, which would make it appear that those who remain are amply sufficient to handle the business at the present time. In spite of the fact that this has been a comparatively dry season, however, the demand from the mines and mills has been considerable, and the mechanical business has not been as quiet as some had feared it might be. The automobile tire business is most active of all. This has of course been the case for a long time, but when the price cutting commenced there was some fear that the tire business would suffer. During the period of heavy cutting, of course, some people stocked up, and it has taken a little time for conditions to become adjusted.

W. L. Eaton, with the San Francisco branch of the New York Belting and Packing Co., is preparing to leave for a month's fishing trip in the mountains near Klamath, Oregon. This is supposed to be the best fishing country in the United States, where salmon and trout both abound and put up a great fight before they are landed.

The Pacific Mill and Mine Supply Co. is doing a good business in its line, notwithstanding the claim that rubber is being driven out of the belting business. "The automobile tire is to blame," they say. "People are getting tired of the prices, and so whenever a new belt comes out made up of a new preparation, they take some for trial, and the market for rubber belting is not very brisk." This firm has a branch store in Los Angeles, and business at the branch store is booming.

The B. F. Goodrich Co. reports a big sale during the past few weeks of garden hose, from orders sent in by their traveling men. This firm has made a few changes in its selling force and is getting everything systematized for a big campaign beginning with fall. This company has organized a baseball team among its employes, and the team went forth and met the unbeatable organization which is made up of the factory em-

ployes of the American Rubber Manufacturing Co. According to its custom, the latter team carried off the victory with ease. The Goodrich team is being strengthened, and when a return match is held, promises to produce a great deal more talent in all departments of the nine.

A. W. Smith, of the Goodyear India Rubber Glove Co., is now visiting in San Francisco. This is his regular annual trip, and he reports that he finds conditions on the coast rapidly improving.

The Gorham-Revere Rubber Co. continues to enjoy a steady and profitable business in all departments, although the tire end of the business is mentioned as being particularly good. Mr. Brady has returned from a trip through the branches in the northwest, and he reports a vast improvement in the northern territory. "Business is fine in the northwest," he said, "and I was most agreeably surprised to find such progress. I found business warranted additional help in a number of the stores, and consequently added a number of new men."

W. J. Gorham, of the Gorham-Revere Rubber Co., who is interested also in a new pump which his son is perfecting, has an order from the city of San Diego for his pump and engine apparatus to the extent of \$65,000. He now has one of his engines and pumps set up for the city of Oakland, which is pumping several hundreds of gallons more than the specifications call for, and to all appearances he has a pump that will do the work demanded. It is intended for automobile fire apparatus, the engine used being the same which drives the automobile.

San Francisco has practically decided, after tests held last week, to substitute automobile fire engines in place of those driven by horse power. The tests were made with a heavy engine with solid rubber tires, and yet this apparatus made the distance in one-half the time that it took the horses. Engines equipped with pneumatic tires can increase the speed.

The city of San Francisco will have fire-hose specifications out this week, and will probably have the bids in by the middle of next month or before. The city has introduced some of the iron-clad specifications which it had one time eliminated, but nobody knows yet just what they are.

Bids have been opened in Portland, Oregon, for 6,000 feet of fire-hose, and considerable activity has been shown in the bidding. In fact the hose men are full of business just now. This is the end of the fiscal year for many small towns, which are now getting in their tax money, and these towns are coming into the market for fire hose.

RUBBER MILL MACHINERY FOR SALE—Continued.

FOR SALE—Duck splitter, latest improved—Farrel Foundry & Machine Co. make—used only three (3) months. Address Box No. 1060, care of **THE INDIA RUBBER WORLD**.

FOR SALE CHEAP—Four (4) slightly used John E. Thropp Sons' jar ring lathes. Address Box No. 1062, care of **THE INDIA RUBBER WORLD**.

A large lot of rubber mill machinery for sale. One (1) new 20-ram Birmingham press, 20' long by 4' 7" wide, with corrugated platen. This press was never used. One (1) 4-roll 20 x 61" calendar and about seven (7) other calendars from the small experimental up to 60". A large lot of mills, washers, crackers, blowers, tubing machines, churns, hydraulic presses, hand presses of all sizes, horse shoe pad moulds, hose-wrapping machines, air-brake wrapping machines, engines, pumps, boilers and other rubber mill machinery too numerous to mention. For sale cheap for cash. Apply to **PHILIP MCGORRY**, Trenton, N. J. (973)

RUBBER MILL MACHINERY WANTED.

WANTED—One (1) washer, one (1) mill about 40 inches, one (1) three (3) roll calendar that is geared for friction and even motion. Would prefer to purchase machines that are now being used, with privilege of examining. Address Box No. 1059, care of **THE INDIA RUBBER WORLD**.

WANTED—Second-hand three-roll stock calendar in good condition; 42-inch or 48-inch roll. Address Box No. 1065, care of **THE INDIA RUBBER WORLD**.

WANTED—Second-hand No. 4 Royle Perfected Tubing Machine. Must be in good condition. Address Box No. 307, **PERTH AMBOY, NEW JERSEY**. (1066)

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

WHEN referring to this matter in my notes last month, I did not anticipate that the publication of my remarks would have synchronized with widespread and lengthy reference to the topic in the daily press. The latter resulted from the paper read by Professor Perkin on June 17 before the

SYNTHETIC RUBBER.

London Section of the Society of Chemical Industry. The main fact of interest in the paper was the announcement that one of his colleagues in this research, Professor Fernbach of the Pasteur Institute, Paris, had successfully solved the problem of the transformation of starch into the higher alcohols by fermentation, and at a cost which would enable the product butadiene to be polymerized into rubber by metallic sodium, so as to compete in the market with natural rubber. In the numerous articles in the press the public have been let a good deal into the mysteries of the higher alcohols, a subject which is not particularly easy of comprehension to those without any acquaintance with organic chemistry. On the present occasion I do not propose to go into detail, but an important fact, or one which is presumably important, has been generally ignored, and to the best of my knowledge has only received mention in the "India-Rubber Journal," and in the remarks contributed by Mr. B. Blount to the "Morning Post." That point is that the new fermentation process is not really a cheap process of preparing isoprene, but its homologue-butadiene. Both of these bodies yield a rubber-like substance when polymerized by metallic sodium; but whereas the isoprene rubber has the same chemical structure as natural rubber the butadiene rubber differs in having one atom of carbon less. Of course the mere fact of this difference in chemical structure proves nothing against the new rubber; it may for all we know be a point in its favor. Still it forms an interesting point for examination. Synthetic rubber made, I understand, from isoprene has already reached the stage of being made into tires in Germany, and it is said to have resisted wear and tear better than the natural rubber. It now remains for the same thing to be done with butadiene rubber—to prove its value. In the meantime criticisms of this sort are useful to cheer up the drooping spirits of rubber plantation shareholders. It will probably be at least three years before the synthetic product makes any effect upon the market; but the announcement certainly had the immediate effect of depressing values upon the Stock Exchange, losses being shown on every quotation except one on the 20th of June following the publication of the details of the process on the 19th. The financial papers talk of the reappearance of the synthetic rubber bogey, and affect a tone of incredulity as to there being anything in it. Everything of course depends upon the price at which it can be produced. Professor Perkin talks airily of 1s. per lb., but as the experiments have not yet emerged from the laboratory stage, I don't see how the estimated working costs can be based on any sure foundation. This more particularly in regard to the fermentation part of the process, which has only been discovered a very short time. It is stated that the fusel-oil yielding the butadiene will not cost more than about £35 per ton, or about one-fifth its present price, and it may yet turn out that the estimated cost is unduly optimistic. Recently two or three forward contracts for plantation Pará over 1913 have been made at 4s. 6d. per pound, an indication of the opinion of the stability of present prices for some time to come. The shooting of the synthetic bolt will probably result in an increased desire on the part of plantation directors to sell for forward delivery, and it will be interesting to see what effect the synthetic announcement will make upon the prices.

Since writing the above the prospectus of the Synthetic Products Co., Limited, has appeared with a capital of £500,000. Profits are to be earned at first upon the acetone and fusel oil, and the potential wealth to be derived from synthetic rubber is a matter for a year or two ahead when the manufacturing details have been thoroughly worked out. Certainly no very great progress has as yet been made, as only a few pounds of somewhat doubtful rubber have as yet been produced. The name of Dr. Goldsmith, who makes a report in the prospectus on the rubber, is not a particularly familiar one to rubber men; in saying which I don't wish to be understood as making any reflection upon the report. Of course it is only natural that those who see their interests threatened by new discoveries should attempt to belittle these, and it is rather important for outsiders to distinguish between the published criticisms of chemists, botanists, etc. in the pay of plantation companies, and others who write as disinterested persons. I don't know how the subscriptions to the new company have come in, but from general conversation I gather that much importance is attached to the statement that tires have been made of synthetic rubber in Germany with excellent results, and the general feeling is expressed that if the new company's product had arrived at the same stage, the issue would have been at once oversubscribed. Of course this may have been the case as it is, but there is no information on the point at the time of writing. But I must not occupy more space with this interesting topic, especially as it will no doubt be dealt with in our editorial columns.

THIS article is being increasingly used in England, especially in grain elevators, flour mills, oil seed crushing works, etc., and like the bulk of rubber articles the rubber mixing, owing to competition, shows a continual decline in quality. Of

CONVEYOR BELTING.

course there is not the same friction in the above cases, as is experienced by ore conveying belts, and a low quality rubber is in most cases considered good enough. Some firms when buying new belts get samples and submit the rubber to an expert, but the more general course is to rely on a mechanical test which determines the strength or weight necessary to part the layers of rubbered canvas. In the case of the belting just supplied to a large new seed crushing mill in the north of England, nothing was said by the buyers as to the quality of the rubber, but the manufacturers had to guarantee the belt to stand definite mechanical strength tests specified by the buyers. I am told of rubber belting used for grain having lasted thirty years, which I should imagine is much beyond the life of many belts of today's make. With regard, however, to the large diameter suction tubing used in grain elevators, the life is usually very short, the corn having a surprisingly strong cohesive action, and it would seem that here there is room for research and improvement.

THIS year's list of honors and promotions included the name of Mr. F. H. Smith, who received a baronetcy. Sir Frederick

A BIRTHDAY HONOR.

Smith recently succeeded Mr. Arthur Birley as chairman of Messrs. Chas. Macintosh & Co., Limited, with which firm he has been associated for about ten years, and upon the fortunes of which, I believe it is not too much to say, his wide commercial experience has made its mark. This firm, however, affords an outlet for only a portion of his energies, as he is chairman or director of several other important concerns, including a colliery, and the cotton spinning business founded by his grandfather about 100 years ago. The new baronet is a well-known temperance advocate, and is of course a liberal in politics, seeing

that his honor is bestowed during a liberal administration. In this respect he is in the opposite camp to his co-directors of Messrs. Chas. Macintosh and Co., the Birley family being among the most stalwart of Manchester conservatives. This baronetcy, by the way, it is interesting to recall, is not the first that has been offered to the Cambridge street firm, for thirty or forty years ago the conservatives offered one to Mr. Thomas Hornby Birley, who, however, declined it.

ALTHOUGH I take credit to myself for knowing the great bulk of the purposes to which rubber is applied, I occasionally come

A LITTLE KNOWN USE FOR RUBBER.

across applications of it which are novel to me. The latest is in connection with the art of book lettering with gold leaf.

Unvulcanized rubber prepared in a special way is used by the artificers who do book lettering for printers, for the purpose of picking up the overflow of gold leaf. Gentle pressure causes the leaf to adhere to the rubber, and when this contains too much of the gold to be serviceable, it is sold to the gold beaters, who burn off the rubber and recover the gold for use over again. At least this is the regular practice in Great Britain. Where the substitute known as Dutch gold is used the recovery of the waste is not a matter of importance, nor is it where the nitro-cellulose imitation leaf is employed. This latter, I understand, is made and used to a considerable extent in the United States.

I LISTENED the other day to a discussion on this subject, one of the speakers saying that the rubber on a table which he knew

BILLIARD TABLE CUSHIONS.

had not been touched for forty years was still quite sound. With rubber cushions of more modern make, he said,

anything like such longevity was unheard of, this being due, he went on to say, to the poor quality of rubber now used. As I was refused an opportunity of testing a piece of the long-lived cushion referred to, I cannot say whether it was vulcanized or not, though it may be taken for granted that it contained a higher percentage of pure rubber than is customary today. I note in connection with this matter that in William Brockedon's patent of November 19, 1846, shortly after Parkes' discovery of the cold cure, he mentions the manufacture of billiard cushions as one of the purposes for which the change, *i. e.*, the vulcanization by dipping can be used. The cushions were prepared by the union of a number of sheets of rubber, or of rubber and gutta percha, which were then immersed. This of course means a very superficial cure and the bulk of the material would be pure rubber.

THE British patent No. 11482-1911, of Terry, Spencer and Curbishley for the reclaiming of waste rubber, calls for a word of

A NEW PATENT.

reference, if only for the long association of the patentees with the rubber trade. It will be noticed that reference

is made only to waste rubber, those elusive bodies so dear to the heart of the patent agent, *viz.*, "allied gums," having no mention. It is also refreshing to see that no claim is made that the rubber is restored to a state of "pristine purity." The claim is limited to the use of one salt, magnesium chloride, which has the property of dissociating under heat, and no attempt is made to include the bulk of the substances named in chemical text books, by using the expression "such as for instance magnesium chloride." I am precluded from saying much about the actual merits of the new process, for reasons which will be obvious to some of my readers; but I may be allowed to say that in one respect, at any rate, it shows an advance on a good many previous reclaiming patents, in that it is in actual use and the products on the market. It might be thought that the reclaiming business was being overdone, but most of the works report themselves as busy, and doubtless reclaimed rubber is being used to a much larger extent today than it was a few years ago. In the patent under mention, high pressure digesters are used as in the alkali processes, there being only three reclaiming works, I understand, in England where the high pressure system is adopted.

NORTH BRITISH RUBBER CO., LIMITED.

A. C. Baker having found it necessary, owing to reasons of health, to relinquish his position as general manager of the North British Rubber Co., Limited, Edinburgh, has taken the post of sales manager of the company, with headquarters at London.

At a recent meeting of the board of directors Alexander Johnston was appointed general manager in Mr. Baker's place, G. A. Findlay was appointed secretary to the company, and W. A. Williams was appointed to the position of general works superintendent.

ENGLAND'S FOREIGN AND COLONIAL TRADE.

Comparative figures issued by the British Board of Trade (converted into American currency) show the following exports:

	To Foreign Countries.	To British Possessions.
1907	\$1,439,456,585	\$690,718,880
1908	1,251,693,985	643,825,135
1909	1,254,711,315	636,190,420
1910	1,413,409,153	736,514,710
1911	1,476,375,770	794,220,720

Thus, while England's foreign trade only shows for five years a net increase of about 2 per cent., her colonial commerce has advanced about 15 per cent. The grand total of British exports for calendar year 1911 equals \$2,270,596,490, as compared with a total for United States exports of \$2,058,413,224.

While with over 2 billions of exports, the United States nearly caught up with England in the calendar year 1911, the following comparative figures applying to the first four months of 1911 and 1912 show this country distinctly in the lead:

EXPORTS FOR FIRST FOUR MONTHS (domestic manufactures).

	1911.	1912.
United States	\$709,925,000	\$807,630,000
United Kingdom	749,900,000	757,540,000
Germany	627,650,000	685,180,000
France	394,300,000	420,370,000
Belgium	225,375,000	234,675,000

The figures of the fiscal year ending June 30 will doubtless show proportionate results.

SEASONS FOR RUBBER GOODS.

According to a German view, the steady trade enjoyed by many German rubber goods factories, is due to the distribution of business into seasons, occurring at various times of the year. In the distribution of rubber goods, there are seasons for selling devices for sports and games, like balls; rubber garments, hose, bottle disks, bath requisites, etc. Of these various seasons the most important converge into the spring. As to pneumatic tires, it is added that the use of automobiles has become so general and continuous, that their sale is hardly any longer connected with any particular season, although it is largest from March to May.

AUSTRALIAN RUBBER.

According to the "Financial News" of London, the cultivation of Pará rubber is beginning to assume some promise of advancement in the north of Queensland. Some years back a shipment of plants arrived from Singapore, and these were distributed by the government to intending cultivators. The plants are growing well, and before long should reap a rich harvest for the farmer. Queensland's tropical lands are considered to be well adapted for rubber growing; the cultivation is simple and comparatively inexpensive, and demand for the product is always brisk. Ere long the production of rubber is thought certain to become one to the most important industries in Queensland.

The Australian "Official Year Book" states that there is in Queensland a forest plantation of 310 acres, as well as 8 experimental farms, with a total planted area of 872 acres. While these lands are not stated to be growing rubber, it is of interest to note that the general principle of experimental cultivation is being carried out in Queensland.

PASSAGE OF HYDROGEN THROUGH RUBBERED AEROSTAT FABRICS.

IN a communication from M. G. Austerweil, presented to the French Academy of Sciences in January last, attention is called to the fact that the escape of hydrogen through rubberized fabrics, has long been attributed to the diffusion of the gas through the pores of the rubber. This supposition, it is added, may have been correct as to fabrics in which the rubber is deteriorated by resinification, but if the covering is intact, or when tested only shows slight escapes, it will still be found that after the aerostat has been inflated for 25 to 70 days, according to the season and temperature, there is an escape of hydrogen through the fabric and a simultaneous entrance of air, as Graham has demonstrated in the past.

Experiments on the fabric of the "Astra-Torres" balloon have demonstrated that its impermeability is essentially variable with the duration of its inflation—that is, with the length of time it has been in contact with the hydrogen. The fabric regains its impermeability some time after deflation has taken place.

As the loss of gas is a reversible phenomenon it therefore cannot, it is added, be attributed to a change in the rubber, which is irreversible.

Under these circumstances, it becomes necessary to seek the real cause in a reversible phenomenon, which takes place in the body of the fabric. This is nothing else than the absorption of the hydrogen by the rubber. It is, moreover, known from Dittmar's researches that rubber absorbs certain gases, while Reychler has demonstrated such to be the case as to sulphurous anhydride.

After a certain period of inflation the covering no longer consists of pure rubber, but of a combination of rubber and hydrogen, in which osmosis becomes possible and is all the more intense, according to the greater proportion of hydrogen. This proportion increases with the duration of the contact between the hydrogen and the rubber; therefore with the duration of the inflation of the balloon.

If the aerostat is then deflated, the fabric, impregnated with hydrogen, will, on being tested, show a very considerable escape, but as the covering of rubber remains in contact with the air, the rubber-hydrogen combination will be decomposed, the hydrogen will be thrown off, and by degrees the fabric will regain its original impermeability.

PROPOSED FRENCH OFFICIAL RUBBER LABORATORY.

MANY of the questions affecting raw silk being more or less applicable to crude rubber, it is of interest to note that M. G. Vernet, the rubber expert, recently paid a visit of inspection to the Lyons *Condition des Soies*, or official silk laboratory, where the percentage of humidity in silk is officially defined. The process consists in the preliminary determination of the absolute dry weight, by submitting samples to the influence of heat until every particle of moisture is extracted. For the purpose of establishing the "condition weight" for which the buyer pays, an addition is made representing 9 per cent. of natural moisture, so that when silk is exceptionally dry the condition weight exceeds the original weight. Various other tests of the count of the silk, its elongation and other points, are not applicable in their present form to rubber, but the principal test, that of moisture, is one which applies to both materials.

According to the French system, the silk conditioned is warehoused under the responsibility of the condition house, so that the certificate of the condition weight becomes practically a guarantee for the buyer that the silk he is receiving weighed so much at a given date.

In addition to the weight, the condition house, according to M.

Vernet's suggestion, would report on the shape, thickness and color of the rubber, loss in washing and the appearance and color of the washed rubber after drying. Other points to be reported upon would include the proportion and nature of resins soluble in acetone, proportion of oxygen in the washed rubber; proportions of azote and albuminoids. These results would permit the definition of the proportion of pure rubber. The nature and percentage of ash would also be shown, as well as the resistance to heat in a stove at 55 degs. C. (131 degs. F.), and the plasticity of the washed rubber. The height of rebound of a ball dropped from a given height would also be noted.

Among other tests which M. Vernet suggests being made by the condition house are: viscosity of solutions, solubility of rubbers in different re-agents, adhesive properties of natural rubber and of rubber obtained by the evaporation of the solvent, as well as dynamometric and mechanical tests.

Condition houses of the same nature as that of Lyons, are established at the principal centres of the European silk industry; as well as in New York.

GUARANTEES OF RUBBER TRANSMISSION BELTING.

AS already recorded, a committee was appointed at the recent congress of German Rubber Goods Manufacturers to investigate the question of introducing uniform terms of guarantee for rubber transmission belting.

In discussing this subject, since the appointment of the above-named committee, a writer in the "Gummi Zeitung" defends the proposal on the ground that while a general guarantee of serviceability is afforded by the law, the valuable character of various manufacturing accessories, such as belting, justifies the demand for specific guarantees. Purchasers will never be satisfied with a mere guarantee of regular and faultless quality. They require an engagement to replace the belting, in case it proves unserviceable before the expiration of the period for which it is guaranteed, when it has been subjected to ordinary wear.

In the interest of the belting manufacturer, where replacement is being provided for, a special stipulation is considered advisable for careful treatment and regular usage. The party using the belting will, as a rule, never be disposed to admit negligence in its treatment, while it is usually difficult for the manufacturer to adduce such proofs on that subject as will relieve him from responsibility. With rubber belting a good many causes of trouble can be foreseen, and the opinion is expressed that cases attributable to faulty usage should be specifically excepted. Such cases, for which the maker of the belting should not be held responsible, include defective arrangement or working of the pulleys, or defects in the pulleys themselves. Where such stipulations are made, the user will naturally see, when the belting is being installed, that the pulley-bearings and other mechanical accessories are in proper order. A good deal is gained by such a precaution, as otherwise the guarantee might prove misleading.

With regard to the duration of the guarantee, that question, it is remarked, is less important than the correct definition of the responsibilities undertaken. The unfavorable consequences of guarantees sometimes reported, are usually the result of too low a price with too long a guarantee. In conjunction with the latter there should be a price paid which would allow of a proper selection of material, the quality of rubber belting exercising, of course, a marked influence upon its durability. The duration of the guarantee would naturally be longer in a high-priced quality than in a cheap belting. By making the guarantee dependent upon the price, the belting manufacturer will be spared much anxiety. In any case the minimum guarantee of six months calls for a quality not to be made of every cheap ma-

terial. A guarantee covering only noticeable defects and excluding responsibility for wear, is so far unfavorable to the user. Thus a belting of such poor quality as to become useless after a few weeks would give just cause for complaint, even in the absence of visible defects. Qualities, it is added, which do not last at least six months, do harm to the whole belting industry.

Moreover, no belting manufacturer should hesitate about undertaking a guarantee of longer than six months, but should be guided by the price. It would not be difficult, it is added, to establish a scale of proportion between thickness, price and duration of the guarantee to be undertaken for rubber belting. The nature of the work has, of course, a material influence upon the life of the belting.

While abuses have in some cases resulted from the improper use of guarantees, to the detriment of belting manufacturers, the opinion is expressed that they cannot be dispensed with. The buyer will not and can not, in his own protection, abstain from asking a guarantee. It is only necessary to look at such an engagement in the same light as any other contract, and so to protect the interests of both parties, that it may give mutual satisfaction.

VIEWS OF GERMAN MANUFACTURERS ON BELTING GUARANTEES.

As the result of a circular letter addressed to the members of the Central Association of German Rubber Goods Manufacturers, it has been found that a guarantee on rubber belting for day work of a year, and for day and night work of six months, was generally recommended as a normal maximum. Such a guarantee would be limited to defects in material and working.

The further elaboration of the proposed guarantees has been placed in the hands of the Continental Caoutchouc and Gutta Percha Co., of Hanover, and the Rheinische Gummi-waren-Fabrik, Franz Clouth, of Cologne; members of the above named association.

THE GERMAN ARMY STILL USING DIRIGIBLES.

The appalling fate of the Vaniman balloon does not appear to deter the German military authorities from further experimenting with dirigibles as an accessory to army movements. The German authorities have just completed the purchase of the Siemens-Schuckert dirigible balloon, the greatest non-rigid airship in the world. It has a speed of over forty-three miles an hour.

TARIFF REFORM IN HOLLAND.

While the total United States exports of manufactures of rubber to the Netherlands for the fiscal year 1911 only represented \$48,240, rubber manufacturers doing business with that country will do well to watch the possibilities of the increased trade which always precedes an advance in tariff.

Holland has hitherto been practically a free trade country, levying on imports only an *ad valorem* duty of 5 per cent. By the measure now under consideration, three broad groups of dutiable articles are dealt with: semi-manufactured articles, 3 to 6 per cent.; doors, window frames, and similar articles for use in further operations 10 per cent.; manufactures available for consumption as they are, 12 per cent.

The free list is a large one and includes various descriptions of machinery, while the duties on carriages and motors are increased. Owing to the opposition the measure called forth, it is now being studied by a government committee, but is still a factor deserving of consideration.

Replete with information for rubber manufacturers: Mr. Pearson's "Crude Rubber and Compounding Ingredients."

RUBBER GOODS IN MODERN TRAVELING.

TRAVELING has become such a characteristic feature of modern life, that in some European resorts the stream of visitors practically never ceases. This is particularly the case at some of the Mid-German points, where the season proper lasts from May to November, with the addition of a winter season prolonged until April. This double season, unknown ten years ago, is more frequently met with as the Alpine regions are approached.

One of the first results of this new development of traveling is the improved comfort provided by hotels for their visitors. In catering to the more exacting requirements of travelers first-class hotels (as a writer in the "Gummi-Zeitung" points out), cannot do without rubber in its various forms. When leaving the station on arrival, the traveler's luggage is carried to the hotel auto by a porter wearing noiseless rubber heels, while the auto itself conveys him to his destination on rubber tires. The steps of the auto-bus have rubber covering and the floor is covered with rubber matting. The rattling of the windows is prevented by a U-shaped foundation of rubber, while the heavy luggage is carried up a ladder with rubber-covered rungs to the roof of the vehicle. On wet days the hotel servants and the chauffeur wear rubber clothing.

The vehicle proceeds through the streets to the hotel, which the traveler enters through rotating doors, the sides of which are provided with strips of rubber, so as to exclude draughts. He reaches the vestibule, which is covered with an immense rubber mat, bearing the name of the hotel in large blue or red letters. Passing over the rubber stair covering, made to suit the width of the marble staircase, he reaches the hotel office, being then conducted to the elevator over rubber-tiled flooring by noiseless attendants wearing rubber shoes.

Meanwhile his luggage has been placed in his room on stands covered with rubber, while the doors and windows are provided with rubber strips. The bedsteads rest on rubber pads in order to prevent noise. The doors leading to the adjoining rooms have rubber strips for excluding sound, while the telephone at the writing desk has a receiver and other parts of hard rubber, with antiseptic protective mouthpiece of the same material.

The bathroom has an anti-slipping rubber mat; rubber tubing conveying hot water to the foot bath and sitz bath. At the douche is a curtain of rubberized fabric. After the bath the traveler steps on to a rubber-sponge mat, where he dries himself.

Having been thus "humanized," bodily sustenance next claims the voyager's attention. On his way to the dining room he passes by numerous doors, each with a rubber mat of uniform size. When the dining room is reached he notices the waiters first adjust the tables and chairs, the rubber casters of which permit noiseless movement; the ladies' chairs being provided with rubber air cushions. Every separate course is served on a small rubber-wheeled table.

If the traveler then wishes to patronize the "Kursaal" he can there try his luck at the "Jeu de Boule" in which a rubber ball may win or lose money for him. Variety in play can be obtained by the use of hard-rubber dice. In the restaurant the bottle of wine he orders is served on a hard-rubber plate, polished like ebony.

Should there be a storm there is an opportunity for the display of ladies' raincoats, hurriedly fetched from the hotel and showing the latest Paris novelties in that line.

Rubber forms an essential feature of modern railway service, through the adoption of many hotel conveniences. The traveler, whether in motion or at rest, benefits all the time by the skill and enterprise with which that material has been adapted to the needs of modern life as a factor in its necessities and luxuries.

Important Japanese Companies

By Our Regular Correspondent.

TSUDA COMPANY (PARTNERSHIP).

ALTHOUGH the registration of this company as a partnership only dates from August, 1906, it is the oldest electric wire plant in Japan. Some sixty years ago it began to manufacture copper wire, and was still doing so in 1880, when further developments of the electrical industry took place.

In that year, with a view of meeting the demand then opening, the company started the manufacture of copper wire for telephones, being the first concern in Japan to do so. When in 1884 electric lighting began to assume importance, the company undertook the manufacture of cotton-braided copper wire, which it supplied to many Japanese electric light companies. Following up the other applications of electricity, the company subsequently commenced to manufacture copper wire for electric car purposes.

The products of the Tsuda Company are now therefore rubber wires and cotton-braided wires, subjected to tests of high insulating and high-pressure apparatus, as well as copper wires for electric cars and other purposes. The total annual value of the product amounts to \$4,500,000, while its distribution extends to Japan, Corea, Manchuria and China. The various plants operated by the company are as follows:

- (1) Copper works at Fushimi.
- (2) Tubing and braiding factories at three points.
- (3) Finishing factory at Fushimi-Yamaski-Cho, Kyoto-Fu.

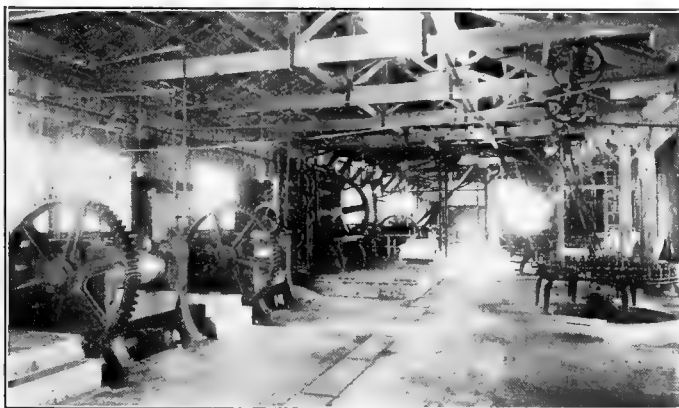
In all, the plants occupy an area of about six acres, of which one-half is built upon, while the installation includes:

- 20 Copper wire manufacturing machines;
- 4 Rubber washing and mixing rolls and calenders;
- 2 Rubber tubing machines;
- 2 Stranding machines;
- 370 Braiding machines;
- 3 Rubber tapping machines.

The motive power comprises:

- Boilers—One 150 H.P., one 35 H.P.;
- Turbine—One 200 H.P.;
- Dynamo—One 85 H.P.

The working staff numbers 284 male and 95 female hands. The company's representative is Mr. Kosaburo Tsuda.



WASHING ROLL, MIXING ROLL AND CALENDER.
KAKUICHI RUBBER CO.

KAKUICHI RUBBER CO. (LIMITED PARTNERSHIP).

This concern is one of the largest Japanese rubber manufacturing companies, and is situated at Osaka. The owners of the concern are Messrs. Kinjino and Ilikotaro Abe, belonging to one of the wealthiest Osaka families. The capital (all paid up), is

\$100,000. Originally established in 1906 as the Kakuichi Rubber Works, it was registered as a limited partnership under its present title in March, 1910.

Its manufactures include rubber rolls, plates and tubes; ebonite; cycle and jinrikisha tires, as well as other goods for railways and



HYDRAULIC VULCANIZING PRESS ROOM.
THE KAKUICHI RUBBER CO.

ships. It also makes surgical and electrical instruments. The motive power includes:

- 2 Boilers, each 50 H.P.;
- 1 Compound engine, 120 H. P.,
(all made in Japan.)

The machinery was imported from England or the United States, and comprises:

2 washing rolls, 7 mixing rolls, 2 calenders, 2 hydraulic pumps, 3 vulcanizing presses, 3 hydraulic vulcanizing presses, 14 vulcanizing pans, 3 tubing machines, 2 braiding machines, 1 accumulator weight, 2 cloth wrapping machines, 1 coiling machine, 1 spreading machine.

In addition to these imported machines, there is a cutting machine for rubber "tabi" soles, constructed in Japan, besides some 2,000 molds of Japanese manufacture.

There is a complete machine shop for the repair of machinery and the manufacture of molds. The staff numbers 150 hands, part of each sex. The area occupied by the company is a little over one acre, about two-thirds of which is covered by the ten factory buildings.

The company has been awarded three gold medals, in addition to one silver and one copper medal.

Annexed illustrations show two interior views of the Kakuichi factory. One represents the rubber washing and mixing rolls and calender, while the other shows the vulcanizing press room.

NEW EUROPEAN RUBBER FACTORIES.

A new company styled "Austria," has been registered at Tetschen, Bohemia, for the manufacture of stuffing-box packings.

The erection of a factory, to make hard and soft rubber goods, for surgical and technical purposes, is said to be contemplated at Lisbon, Portugal. Reports state that the business is being started by the Société Industrielle du Caoutchouc, of Paris, under local management in Lisbon.

Reports from Hanover state that the recently established regenerating concern, the Hannoversche Gummi-Regenerier Werke Luttermann & Co., Hanover, has erected a factory, with an up-to-date equipment, every effort having been directed to rendering the installation as complete as possible.

Some Rubber Planting Notes.

SOME SUMATRA STATISTICS

RECENTLY published statistics affecting the East Coast of Sumatra show that the number of rubber estates had increased from 100 in 1910 to 120 in 1911. The number of trees is put at 18,000,000. The total rubber exports from various districts were:

	1910.	1911.
	Kilos.	Kilos.
Balawan	390,282	547,270
Tanjong Balai	17,667	14,078
Tanjong Tiram	37,705	84,992
Tanjong Poera	12,138	21,652
Total	457,792	667,992

This increase of nearly 50 per cent. shows what may be expected from Sumatra in the future.

SUMATRA VS. STRAITS.

The June reports of Messrs. Harrison & Crosfield, Limited, include the following results for that month, which indicate the increase of yield is still making progress, with every prospect of being maintained:

	June, 1911.	June, 1912.
	pounds.	pounds.
STRAITS COMPANIES.		
Anglo-Malay	54,347	61,966
Bikam	8,301	11,324
Golden Hope	9,030	10,498
London-Asiatic	23,905	54,606
Pataling	21,833	32,134
Seaport	2,795	13,684
Selaba	15,974	24,233
Sungkai-Chumor	4,122	18,000
Tangkah	1,961	5,518
Totals	142,268 pounds.	231,963 pounds.
SUMATRA COMPANIES.		
United Serdang	21,129	61,612
Sialang Rubber Estates	4,326	15,664
Totals	25,455 pounds.	77,276 pounds.

BIKAM RUBBER ESTATES, LIMITED. (FEDERATED MALAY STATES.)

In addition to a balance of 13,440 pounds deliverable under forward contracts at an average gross price of 5s. 2d. (\$1.26) per pound, this company has sold for 1913 delivery 36,000 pounds at 4s. 9d. (\$1.16).

LONDON ASIATIC RUBBER AND PRODUCE CO., LIMITED. (FEDERATED MALAY STATES.)

Out of the 274,311 pounds harvested during the six months ending June 30, 1912, 82,853 pounds have been sold at an average gross price of 4s. 6.57d. per pound (\$1.11). There still remain to be delivered under forward contracts:

During 1912, 107,520 pounds at 4s. 6.88d. (\$1.11).

During 1913, 108,000 pounds at 4s. 7.72d. (\$1.13).

These forward sales indicate confidence on the part of buyers and must be gratifying to sellers, seeing that the cost is about 1s. 5d. (35 cents).

SCOTTISH MALAY RUBBER CO., LIMITED. (FEDERATED MALAY STATES.)

The amount of the rubber yield for the first six months of 1912 has been 68,469 pounds, as compared with 32,023 pounds for the corresponding period of 1911.

RIVERSIDE (SELANGOR) RUBBER CO., LIMITED. (FEDERATED MALAY STATES.)

During the six months ending June 30 last the yield of dry rubber was 63,254 pounds, as against 19,824 pounds for the same period last year.

BUKIT RAJAH RUBBER CO., LIMITED. (FEDERATED MALAY STATES.)

The yearly report for presentation to shareholders at the annual meeting of July 15, showed that the yield of rubber had increased from 6,813 pounds in 1904-5 to 567,214 pounds in 1911-12. Dividends rose during the same period from nothing to 150 per cent., the figure at which they have steadily remained during the last three yearly periods. The average yield of the total area now being tapped, of 1,977 acres in young and old rubber was 287 pounds per acre. The estimated yield for the current year is 600,000 pounds.

INDIAN LABOR IN MALAYA.

According to figures submitted at the recent annual meeting of the Planters' Association of Malaya the number of arrivals of Indian laborers for 1911 showed a material increase as compared with the previous years. The following returns show the net increase as represented by the difference between the number of arrivals and that of departures:

INDIAN LABORERS ENTERING AND LEAVING MALAYA.

	Arrivals.	Departures.	Net Increase.
1909	49,817	31,374	18,443
1910	83,723	39,080	44,643
1911	108,471	48,103	60,368

These figures are considered very satisfactory, and it is expected that those for 1912 will be equally good. The number of immigrants in January, 1912, was about 12 per cent. more than in January, 1911.

In connection with this subject, interest attaches to the figures of the estate population of the Federated Malay States and Kedah at the census of March, 1911, amounting to a total of 187,179, of which 152,929 were males and 34,250 females. Increased labor and increased production thus go hand in hand.

SANATORIA IN MALAYA.

With a view to affording European residents in Malaya the benefits of a holiday resort in a bracing atmosphere, a party, including the High Commissioner of the Malay States, accompanied by a group of prominent officials, recently visited Gunong Tahan, the loftiest peak in the Malay peninsula. At a height of 6,000 feet, where the party encamped for several days, samples of the water were obtained for the purpose of analysis, a step necessarily preceding any further measures. The spot is conveniently reached by the new railway passing near the foot of the mountain.

FUSION OF SINGAPORE RUBBER COMPANIES.

According to Singapore advices an agreement has been made for the formation there of a new company, under the style of "The Tapah Rubber Estates, Limited"; to acquire the properties of the New Singapore Rubber Co., Limited, and the St. Helena Rubber Co., Limited. The former of these two companies has 833 acres in Pará rubber and 1,188 acres uncultivated, while the latter has 403 acres planted in rubber. The nominal capital of the new company will equal about \$300,000 gold

THE MALAYAN EXPORT TAX ON RUBBER.

THE recent London agitation in opposition to the Malayan export tax of 2½ per cent on rubber, has been followed with interest, both in England and in the Federated Malay States.

Mr. Arthur Lampard, at the annual meeting of the London Asiatic Rubber and Produce Co., remarked: "I and a good many others associated with me have a strong belief in Free Trade, and the thing that really we dislike very much is the export tax. There is no export tax at all enforced in Ceylon or Southern India, nor, of course, is there in Sumatra or Java, and while we are told that this is necessary for the conduct of the business of the Federated Malay States, we fail to see how it is possible that that should be the case when they have a surplus of something like five millions sterling. The money is being raised out of Perak, Selangor and Negri Sembilan. It is not being spent there. It is being raised largely out of the rubber industry. . . . We believe that any unnecessary cost which is put on to the rubber industry in the Federated Malay States which makes working there less favorable than it is, say, in Ceylon and Southern India, should be brought before the notice of the public. It is our duty, as representing your interests, to make these facts public, because that is the only possible way in which we can get them rectified."

In replying to these criticisms and other similar utterances, Sir Ernest Birch, in a letter to the "Financial News," said: "I will take the *ad valorem* duty on rubber first. I do not know at exactly what sum it works out, but, with rubber at 5 shillings per pound, I take it that it is in the neighborhood of 1½d. per pound. . . . Can anybody who is able to look at both sides of a question say that it is overtaxing an industry which pays over 100 per cent. to take 2½ per cent. for the purposes of general administration?"

Dealing with the general question of the finances of Federated Malay States, Sir Ernest adds: "Has not the government of the Malay States established a reputation for strength of purpose with most successful results? . . . Is the administration to shape itself to suit the rubber industry only, or is it to look forward to the fuller development of the States, to important railway expansion, and to the building up of a huge and varied trade?"

While Brazilian planters have to pay an export duty of 22 per cent., there seems in comparison but little ground for complaint on the part of the planters of the Federated Malay States. If even contributing to the surplus of \$25,000,000, it is to be assumed that rubber planters will profit in the future by the railway extension and other improvements to which it will be devoted.

MALAYAN ESTIMATES BEING MADE GOOD.

By the most recent statistics the estimates of increased Malayan rubber production are being made good. In round numbers exports of the first six months of 1910, 1911 and 1912 were, respectively, 5¼, 8½ and 15½ millions of pounds, the estimate of 36 million for 1912 being thus in a fair way of being realized.

According to the information cabled by the Federated Malay States government to the Malay States Information Agency, the export of plantation rubber from the Federated Malay States for the month of June amounted to 2,305,915 pounds, which makes the total for the six months of the present year 15,382,265 pounds as against 8,349,397 pounds for the corresponding period of last year.

Appended are the comparative statistics for the corresponding periods in 1910 and 1911:

	1910.	1911.	1912.
January Pounds	768,743	1,329,170	2,730,576
February	728,458	1,490,849	2,715,767
March	899,383	1,916,219	3,089,583
April	1,123,097	1,235,917	2,285,390
May	877,435	1,147,488	2,255,034
June	879,675	1,229,754	2,305,915
Totals	5,276,791	8,349,397	15,382,265

MALAYAS PROMISE AND PERFORMANCE.

Commenting upon the fact that various leading rubber companies in the Federated Malay States (whose financial year ends in March), have not only materially exceeded their output of 1910-11 in that of 1911-12 but have likewise exceeded the estimates of increased production, the "Investors Chronicle" of London writes: "This is a magnificent record. Nature does the work expected of her, with almost mathematical precision. And it must be said in justice that the planters and managers equally do theirs. . . . So far as estimate and results go, the above record shows there is no agricultural product which can compare with the *Hevea* in the almost mathematical accuracy with which its outputs can be gauged by competent authorities, and its remarkable ability, so far as the F. M. S. is concerned, to rise superior to climatic conditions."

MALAYAN COSTS AND YIELDS.

IN connection with the statement which has been made that synthetic rubber could be produced at 60 cents per pound (and possibly at 24 cents or less), it is of interest to note from the subjoined table that the average cost in 1911 of the five largest Malayan companies, which together furnished more than one-sixth of the Malayan output, represented 38.76 cents and the average selling price about \$1.22 per pound. Plantation rubber has thus a large reserve of competing power.

Another point to be considered in connection with the present phase of the synthetic question is the progressive increase in the estimated Malayan output (as shown by subjoined table) from 23,400,000 pounds for 1911 to 130,000,000 for 1916. Comparing the estimates of the Dutch Consul General at Singapore with those of the United States vice-consul at the same point, the figures, though more or less differing for the years 1912 to 1915, are practically the same for 1916:

		Dutch Consular Estimate.		United States Consular Estimate.	
		Pounds.		Pounds.	
Actual	1911 ..	23,400,000		23,400,000	
Estimated	1912 ..	45,587,000		36,000,000	
"	1913 ..	64,152,000		48,000,000	
"	1914 ..	86,712,000		66,000,000	
"	1915 ..	111,537,000		90,000,000	
"	1916 ..	133,083,000		130,000,000	

YIELD, COST AND SELLING PRICES, FOR FIVE LEADING MALAYAN PLANTATIONS.

Established.	Yield, 1911. (Pounds.)	Cost (average).		Selling price (average).		Dividend, 1911.
		s. d.	cents.	s. d.	\$ c.	
1895.....Linggi Plantations	1,097,719	1 3.85	32.13	4 9.56	1.16.72	194 per cent.
1909.....Straits Rubber Company	985,279	1 7.83	40.20	5 3	1.27.71	45 per cent.
1905.....Anglo Malay Rubber Company.....	780,972	1 5.50	35.47	5 2.54	1.26.77	70 per cent.
1906.....Highlands & Lowlands Rubber Company.....	633,000	1 4	32.43	4 9.20	1.15.94	37½ per cent.
1899.....Selangor Rubber Company.....	501,638	2 2.42	53.56	5 0.48	1.22.60	275 per cent.
Total, pounds	3,998,608					
Average for five companies.....		1s. 7.12d.	38.76c.	5s. 0.16d.	\$1.21.95	124 per cent.

THE REAL RUBBER OUTLOOK.

According to a rubber manager, who passed through Hong Kong recently, and whose views are quoted by the "South China Morning Post," Malay homesteads are now surrounded with rubber trees instead of cocoanuts as formerly. The latter are being rapidly exterminated on most of the estates and many other profit-yielding crops, such as sugar cane, are vanishing.

He adds: "It is impossible in the circumstances that the price of rubber can be maintained. It is true, certainly, that the demand for rubber is increasing, but it is also true that the production is multiplying at an enormous rate, and the cost of labor rapidly increasing. The next two years, during which most of the estates which came into being during the boom would come into full bearing, would be vital ones for rubber shareholders. It would eventually resolve itself into a case of the survival of the fittest, and consequently the older companies with substantial reserves laid by during the boom period, would probably buy out the weaklings at prices which shareholders would be compelled to accept."

THE WORLD'S RUBBER ACREAGE.

FOR some little time past the world's area in plantation rubber has been known to be approaching the million-acre mark, that figure having been named by THE INDIA RUBBER WORLD of May last (page 393) as having been then probably exceeded. The estimate of Vice-Consul General Figart of Singapore had placed the acreage for 1910 at about 800,000 acres. The increase of some 200,000 acres, or 25 per cent. of the planted area, according to statistics to the end of 1911, shows that the large yields have encouraged fresh planting. A comparison of the two estimates confirms the fact that planting is still on the increase upon the Malayan Peninsula, with the prospect of all the more rubber in five years from now:

ESTIMATES OF WORLD'S ACREAGE PLANTED IN RUBBER.

	1910.	1911.
Malayan Peninsula acres	362,853	500,000
Ceylon	241,885	200,000
Java and Sumatra	150,000	200,000
India Burma	43,525	30,000
Borneo		25,000
Cochin China	11,000	15,000
Other countries (say)		30,000
Totals	809,263	1,000,000

The later estimate having been compiled by the Association des Planteurs de Caoutchouc may be considered as reliable and as fully confirming the previous anticipations on the subject of the "million acres."

MALAYAN PRODUCTION IN 1916.

ESTIMATES of acreage planted in rubber are of interest, but their practical significance depends upon the number and age of the trees they contain, as well as upon their prospective yield.

In order to define the probable result, it is necessary to establish a normal basis of yield per acre, varying with the age of the trees. Such an estimate has been made by Dutch Consul-General Spakler, of Singapore, as follows:

Trees	Yield per acre in pounds.
4 years old	60
" 5 " "	125
" 6 " "	200
" 7 " "	250
" 8 " "	300
" 9 " "	325
" 10 " "	350

Applying these rates to the 500,000 acres planted up to 1911, according to the acreage at various ages of trees, the following result is shown:

POSITION AT END OF 1911.

	Acres.	Age of trees per years. acre.	Estimated yield 1911. Pounds.
Planted 1876-1898	50	35-14 1,000	50,000
" 1898	500	13 350	175,000
" 1899	1,000	12 350	350,000
" 1900	1,450	11 350	507,000
" 1901	4,000	10 350	1,400,000
" 1902	8,000	9 325	2,600,000
" 1903	10,000	8 300	3,000,000
" 1904	14,000	7 250	3,500,000
" 1905	35,000	6 200	7,000,000
" 1906	48,000	5 125	6,000,000
" 1907	93,000	4 60	5,580,000

Total tapped 1911	215,000	Estimate 1911	30,162,000
Planted 1908	48,000		
" 1909	61,000		
" 1910	113,000		
" 1911	63,000		

Total untapped 1911285,000 acres.

Total acreage 1911500,000 acres.

The fact that the actual exports from the Malayan Peninsula only amounted in 1911 to 23,400,000 pounds, is attributed to the drought of the spring months, and to the fact that to a great extent the plantations of 1906 and 1907 were neglected in 1908 and 1909, their future yield being thus affected.

Estimates for the years 1912 to 1916 are:

	Planted (Acres).	Tapped (Acres).	Estimated yield (Pounds).
1911	500,000	215,000	30,162,000
1912	500,000	263,000	45,587,000
1913	500,000	324,000	64,192,000
1914	500,000	437,000	86,712,000
1915	500,000	500,000	111,537,000
1916	500,000	500,000	133,083,000

These figures, it will be understood, take no account of the yield from plantings of 1912 and later years. That from the acreage actually planted, the market will in 1916 have to absorb 133 million pounds, as compared with 23 million pounds in 1911, is a fact to be kept in view when estimating future prospects.

The estimate of Mr. Figart, United States vice-consul general at Singapore, of the 1916 yield, quoted by the INDIA RUBBER WORLD in January, 1912 (page 162), was 65,000 tons (130,000,000 pounds), which practically agrees with the above independent estimate of 133,083,000 by the Dutch consul general at the same port.

RETIREMENT OF A PIONEER MALAYAN PLANTER.

After 28 years in the East, Mr. J. B. Douglas lately returned to England. Mr. Douglas has been for five years with the Anglo-Malay Rubber Co., and altogether has had a pretty wide experience of rubber in his province, Negri Sembilan. When asked before leaving as to his general opinion of the best land for rubber-growing in Malaya, he stated that he thinks the hilly country will always prove the more satisfactory where it has been planted up, the low-lying land being subject to floods and swamps and other experiences so injurious to rubber.

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

WEATHER conditions here are not such as to cause complete satisfaction. The promise given at the breaking of the drought has not altogether been fulfilled, and we are not having typical rainy season weather. The colony is not unnaturally dry, as it was during the period of the drought, but the rain is neither so frequent nor so abundant as to free leaders in the balata industry entirely from anxiety. Heavy showers fall at unexpected intervals, but the aggregate rainfall is not sufficient. The returns, when published, will make interesting reading. It is stated in the "Daily Chronicle's" market report that in some districts 14 inches have fallen, in others 8 inches, while on the East Coast of Demerara the fall has been less than 4 inches, which is not sufficient. Unfortunately the nature of the balata industry has not led to any steps being taken to obtain exact rainfall returns from the interior, so which of these three averages is likely to apply in the balata bush is not known. The market report above quoted, however, states that the prospects for the industry are satisfactory and that shipments will be good later on. At present they are very much "down" in the export of balata.

THE LABOR PROBLEM AND THE BALATA COMMITTEE.

There is one feature of the existing situation, however, which is not satisfactory, and that is the eternal labor problem. I have already indicated the difficulties that have arisen in consequence of laborers demanding newer contracts than those signed in January, when the drought was not expected to be of so long a duration. A more insidious difficulty has now arisen. Owing to the generosity of some companies who took a broad-minded and, it was to be presumed, far-seeing policy, in "advancing" their men during the bad times, some men have accumulated a considerable indebtedness. It was thought that the lateness of the season would have prompted a ready response to the call for a return to work. But the absconding evil has again arisen; not to a very serious extent it is true, but it is not yet dead. One gentleman, who has had a long experience of the forest industries, and of the laboring class of British Guiana, has expressed the view to me that the men, fearing that owing to the shortness of the season, they will barely make more than enough to clear off their indebtedness, have no intention of doing any serious work. This may be an exaggerated view, but it receives a certain amount of confirmation from a gentleman who states that, according to the reports he has received, the men whom he despatched a little while ago are doing little work. Perhaps the Balata Committee will offer some adequate solution of this difficulty. The report was signed a few days ago, and is, I am told, a voluminous document. It should be published without delay. It is hoped that it will not be mere verbiage, but that it will embody some practical, common-sense remedies for what is admittedly a serious evil.

THE NEW YORK EXHIBITION: A COLONY EXHIBIT IMPROBABLE.

The question of the colony's representation at the Rubber Exhibition to be held in New York in September continues to engage attention. At a recent meeting of the Permanent Exhibitions Committee, letters from the Royal Agricultural and Commercial Society and the Chamber of Commerce were read. The Deputy Chairman, Professor J. B. Harrison (Director of Science and Agriculture) informed the committee that he consulted with Mr. H. C. Pearson, of THE INDIA RUBBER WORLD, who is vice-president of the Exhibition, and keenly interested in the rubber industry in the Guianas, and he advised that unless a really good show of rubber and balata could be made in New York, it would be to the interest of the colony not to be represented. The secretary reported that steps had been taken to ascertain whether

arrangements could be made for the distribution of British Guiana literature at this exhibition. Up to the present no reply had been received from the exhibition authorities. The director of the Imperial Institute had also been approached as to the strengthening in number of the British Guiana samples of rubber and balata shown at their stand, and the institute is also being asked to undertake the distribution of literature, if that is possible. The committee approved of this action and confirmed the opinion expressed at the last meeting as to the sending to this exhibition of exhibits of rubber and balata.

The decision has excited some feeling. In an interview the president of the Royal Agricultural and Commercial Society, said: "My own personal opinion is that the colony should make an effort to secure an effective, if even a small, representation. While we cannot make any claims to possess an established rubber industry, we can at least show we have suitable climate and conditions, cheap land, sufficient labor and a public and administration desirous of welcoming and advancing the new industry. I may say that Messrs. Bonsall have offered the society to contribute \$150 to the cost of a representation at New York."

The president of the Chamber of Commerce, Mr. G. R. Garnett, said: "The Chamber of Commerce feels very strongly on this subject. They think that exhibits of both rubber and balata should be sent, and we have reason to believe that there is ample time in which to secure satisfactory samples."

Mr. G. C. Benson, attorney in this colony of Mr. Ed. Maurer, during the absence of Mr. Edward Edwards in England and the United States, said: "It is certainly possible to obtain a sufficient quantity of the very best balata by August. A man could bleed 100 trees in a month."

BALATA MAN'S RESIGNATION FROM THE LEGISLATURE.

Mr. C. P. Gaskin, who is largely interested in the Balata industry, and who was a member of the Court of Policy, has applied for and obtained a Receiving Order in Bankruptcy. He thus *ipso facto* resigns his seat. This is something of a loss to balata interests here. It was he who successfully led the campaign at the recent annual session of the Legislature, for the abolition of the export duty on balata. Mr. Downer, who was elected to the seat thus vacated, was also at one time connected with the balata industry, and knows its needs thoroughly, is a business man of many years' experience and is pledged to a policy of Hinterland development. So the change is not disastrous.

RUBBER SEED: DANGERS OF INDISCRIMINATE PLANTING.

The report of the delegates of the Board of Agriculture, who attended the recent West Indian Agricultural Conference at Trinidad, has now been issued. They say of rubber: "Early on Monday morning the delegates were present at a demonstration of methods of rubber tapping and curing at St. Clair. The British Guiana representatives saw little that was new to them with exception of the somewhat heroic method adopted for bleeding *Castilloa*. . . Dr. Cramer was in full agreement with the British Guiana delegates as to the heterogeneous nature of the trees and the danger of indiscriminately planting seeds produced by them. It was agreed that the wisest procedure would be to fell every tree which presented other than the characteristics of typical *Hevea Brasiliensis*."

HEVEA AND SAPIUM: THE DAVID YOUNG ESTATES.

Much has been heard lately of the failure of the *Sapium* rubber trees. At the Agricultural Conference at Trinidad, Professor Harrison said it was not yet possible to speak of the estate's commercial possibilities, but hoped that it would be possible to do it in the course of next year. It will be recollected that the David Young Rubber Estates, Limited, are largely planted in *Sapium*, and that in consequence of recent rumors this company has been somewhat under a cloud. Things, however, are not so bad as they look. Mr. Thomas Walker, who is in charge of the

estates, came to town recently and, in the course of an interview, said: "The *Hevea* trees planted some years ago are doing very well indeed. Many of them have attained a height of 25 to 30 feet and a girth of 17 to 20 inches at a distance of 3 feet from the ground. All the *Heveas* are seedling; a satisfactory sign. Altogether such progress is being made, that in a year or two tapping operations can be commenced."

FURTHER BRITISH GUIANA NOTES.

BALATA PROSPECTS

ACCORDING to the "Daily Argosy," the rains, while not yet satisfactory in quantity, have been sufficient to permit the moving of stocks of last season's balata which had accumulated.

A shipment of balata for the Consolidated Rubber and Balata Estates, Limited, was expected in the course of a few weeks. It amounts to about 14,000 pounds and is from grants on the Takatu. The balata was not collected this year. Messrs. Bugle & Co. also had a big amount of balata at one of their grants held over from last season, and the arrival of this was expected in a short time.

The first consignments of balata collected this season, at the remoter grants, at any rate, are not expected till about the end of August or beginning of September. It will be well on in July before the men who have gone up will get settled down on the grants for collecting work. Then, after the trees have been bled, some time will elapse before the milk has been converted into marketable balata, and after that there will be the time taken

Experimental Station at Issororo in the Northwest district has been commenced. Recently, Mr. F. A. Stockdale, Assistant Director of Science and Agriculture, tapped, it is understood, some eighty of the trees, the height and girth of which were re-



MEADOW BANK AVENUE, DEMERARA, B. G.

ported on very favorably. The results of the tapping have not been made public.

EXHIBITS IN COMMERCIAL QUANTITIES.

With reference to the decision of the British Guiana Permanent Exhibitions Committee, not to take part in the approaching New York Rubber Exposition, the principle enunciated is officially stated to be general in its application.

The resolution passed at a recent meeting of the committee was to the effect that only exhibits of first-rate quality and in large commercial quantities should in future be sent to exhibitions, it being considered that more good to the colony would accrue from these than from the display of small sample collections.

BRITISH GUIANA BALATA COMPANY, LTD.

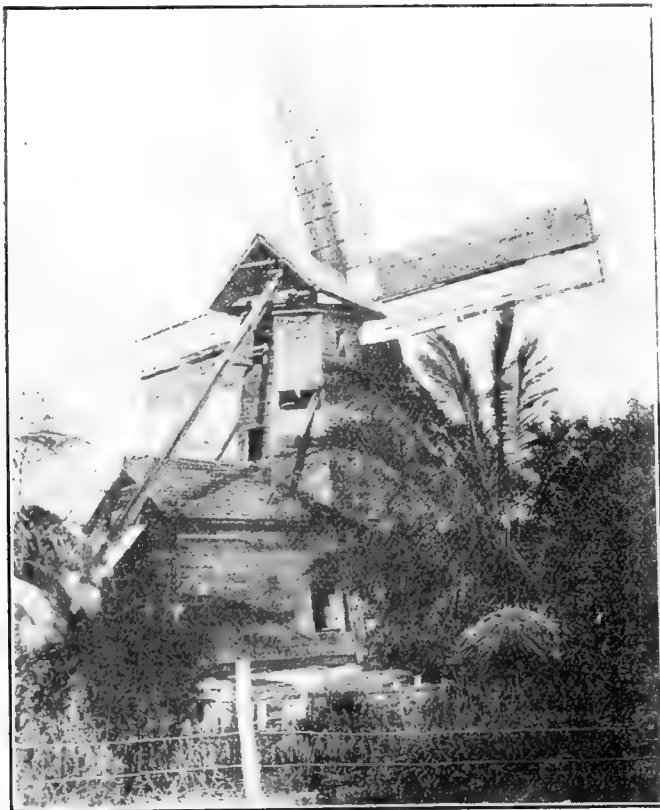
Arrangements are said to have been made on behalf of Mr. Ed. Maurer, of New York, whose attorney in the colony is Mr. Edward Edwards, for working the balata grants of the British Guiana Balata Co., Limited.

This company was formed in 1910 to take over licenses for collecting rubber and balata over an area of forest land comprising 448,000 acres, situated near the Essequibo river.

It is stated that the balata trees in the explored part average 8 to the acre; the whole property containing over three and a half million trees, varying in height from 80 to 100 feet.

THE MAUS TAPPING SYSTEM.

According to the "Singapore Free Press," Mr. Theodor Maus, who has had a good deal of rubber experience in East Africa, has arrived in Singapore, with the purpose of trying to introduce a system of tapping *Hevea Brasiliensis* to which he has given much experimental attention. It is claimed for his system that it stimulates the natural flow of latex to a hitherto unprecedented degree. Mr. Maus affirms that in the case of young trees of tappable age this plan will yield more than twice the amount of first class dry rubber than is at present to be looked for. There is even a smaller degree of bark removed than is the case with the half herring-bone system. Manual labor is also reduced, and generally much better results are obtained with much less strain on the trees. Mr. Maus believes that the adoption of the method he has devised would secure at once economy and efficiency, with a larger output.



SUGAR CANE MILL, GOLDEN GROVE, DEMERARA, BRITISH GUIANA.

in getting the balata transported to Georgetown. It should not be very long, however, before consignments are obtained from grants not a great distance from Georgetown.

EXPERIMENTAL TAPPING AT ISSORORO.

In accordance with a recent decision by the Board of Agriculture, the experimental tapping of rubber trees at the Government

RUBBER AND BALATA IN DUTCH GUIANA.

By a Resident Correspondent

THE first Balata of this year has arrived in Paramaribo from the nearest Balata concessions. From some other more remote parts of this colony less energetic gangs of laborers returned without reaching their grants, pretending the "falls" were too dangerous to pass over.

It may be taken as a rule that the heavier these people are in debt to their employer, the more pretensions they have and the less energy they show in fulfilling their contracts. Rubber is growing fine with this weather. The accompanying photo shows two-year-old rubber trees at Geversvlijt Estate, a private company of S. Haas Brothers.

GOVERNMENT BALATA REPORT.

A very elaborate and important report has just been issued by order of the Government on "The Balata Problem in Surinam." In the preface the authors say: "Neither here, nor in Demerara nor Venezuela, have the governments thought it their duty to make a thorough study of the Balata industry, and to try to point out if, and in which direction, the situation ought to be changed."

The situation of the whole industry, its history, past and present, laws, labor conditions, forests, bark, tapping, etc., are fully and ably described and comparisons made with Demerara and Venezuela.

Besides interesting statistical tables which will be referred to on a future occasion, the work contains studies on the tapable bark of the Balata tree, how the bark grows, and on the cells containing the

Balata milk, which are quite a revelation and very interesting. The "cells" containing the balata are chiefly in the outer bark, there is no wound response as with *Hevea*. If not tapped it dries up and with a microscope you can easily find the dry balata in the corky dry outer bark, which is last expelled from the tree. And never, though tapped with the greatest care, will all the balata contained in the long cells run out.

Once tapped it is only possible to get balata again on the same place, when the old bark is grown out and replaced by totally new bark, *i. e.*, after 8 to 10 years.

Mr. Henry Benjamin, the head of our largest Balata Company, "Surinam," left by last mail for Europe, retiring from business. Meanwhile we have read that Mr. Struycker has resigned his Government situation and accepted the head management of the Balata Company, "Surinam."

The government statistics indicate a slight falling off in the values of tires exported the past spring as compared with a year ago. The figures show that during May, 1912, \$272,317 worth of tires were sent out of the United States as compared with \$310,346 for May, 1911.

Of course the lower price of tires last May as compared with the year before must be borne in mind in this comparison.

ANOTHER NEW USE FOR RUBBER.

MUCH interest has been manifested in Brazil in the proposed use of rubber as a foundation of fur garments. Señor Armando Diniz, in the "Commercio do Amazonas," of Manaus, writes as follows:

"Besides the numerous present industrial applications of rubber, the Americans (North—well understood) have just discovered another, which seems to us of the greatest practical utility, and consequently destined to considerably increase the use of rubber.

"It consists in its substitution for the skins of animals, which serve for the warmth and adornment of the fair sex during the winter in temperate climates.

"Furs—as everyone knows—however well dressed, are continually a prey to numerous insects, to such an extent that they can only be preserved during the hot season by being saturated with camphor and its derivatives. But none of these precautions are sufficient to afford them immunity.

"The new process consists in transferring the animal fur upon

an artificial skin of rubber, scientifically prepared with a view to preserving it.

"It is said that by this process the fur will retain its original luster for many years, and can be without apprehension exposed to the weather, being, moreover, proof against all vermin and insects. There is no need of special care, nor of violent antiseptic agents for insuring preservation.

"Above all other advantages the new process

affords to animal fur, is that being united with a layer of rubber, it can only be removed by violence, and never through the decomposition of the rubber."

RUBBER BALLS IN EUROPEAN GAMBLING.

ONE of the most popular and widely diffused European gambling games is the "Jeu de Boule"; its favor being partly due to the lowest stake being one franc (or 20 cents). Nevertheless, a continuance of bad luck may relieve the player of a comfortable sum (or an uncomfortable sum) within an hour or two. The game is played by means of a tray resembling that used for roulette, into which a colored rubber ball drops. After circulating, it falls into one of the nine holes in the bottom of the tray, showing its capriciousness by first locating in one hole and then changing to another. The balls are gray, two inches in diameter, and painted like tennis balls in red, blue and green. Some players are so superstitious that they will only play when balls of a certain color are rotating. Gambling in European resorts thus cannot do without rubber.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.



TWO-YEAR-OLD RUBBER TREES AT GEYERSVLIJT, DUTCH GUIANA.

NEW TRADE PUBLICATIONS.

THE Bristol Co., Waterbury, Connecticut, has recently issued a handsome 64-page catalog 8 inches x 10½ inches, carefully printed on heavy-coated paper. The catalog contains a great many half-tone illustrations of the recording pressure gauges and vacuum gauges made by the company, some of these cuts filling almost a page and showing in minute detail the characteristics of these gauges.

This catalog, which, by the way, is No. 1000, lists all of the Bristol company's recording and vacuum gauges except the round form models 50, 52 and 56, which are shown in bulletins issued earlier by the company.

The illustrations not only show gauges as generally used, but show them in portable form and in waterproof and moisture-proof cast-iron cases. Some of the illustrations show the construction of the gauges, making very clear the simplicity of their construction. An interesting illustration that occupies two pages is a full-size fac-simile section of a 12-inch chart, with record of draft in sack for B & W boiler in the power plant of an electric light and power company, as recorded by a Bristol recording vacuum gauge. Twelve pages of the catalogue are devoted to a list of names of some out of the 25,000 users of the Bristol gauges.

The B. F. Goodrich Co., Akron, Ohio, has issued a large sheet printed on a sort of parchment paper 22 inches by 34 inches in size, which folds into 8½-inch x 11-inch folder. It devotes half of its space to reproducing a number of letters received from members of the trade, complimenting the Goodrich Co. on its recent price reduction. The rest of the folder is given up to showing, in the form of large half-tone cuts, some of the more recent styles of automobile tires manufactured by this company, among them the Goodrich Master Tread tire, the Goodrich-Bailey Tread and the Goodrich Metal Studded tire.

The Diamond Rubber Co., Akron, Ohio, has recently mailed the trade a folder about 6 inches x 10 inches, which opens out into a large sheet and shows cuts, standing nearly a foot high, of three of its famous tires—the Safety Tread, with rubber "Squeegee" bars; the Grip Tread, with steel rivets, and its smooth tread tire. The folder carries this motto: "We could build them cheaper—but we won't. We would build them better—but we can't."

The United States Tire Co. has issued No. 9 of its magazine called "U. S. for Us." This is a little publication intended for home consumption by the employees of the United States Tire Co. It is full of encouragement for the members of its selling force, and gives sage advice as to the methods by which their success may be increased.

The Portage Rubber Co., Akron, Ohio, is distributing a tasteful little pocket catalog called "Portage Tires." It illustrates a number of the best-known tires made by this company and describes them. The little book contains an "Inflation Table," together with a table showing the carrying capacity of the company's tires, and gives the price list now in effect.

The Combination Rubber Manufacturing Co., Bloomfield, New Jersey, issues a little booklet 3½ inches by 6 inches, of 32 pages, entitled "A Condensed General Catalog." The name indicates its character. It describes, without illustration, the various products of the company, including rubber belting, garden hose, suction hose, air-drill hose, brewers' hose, acid hose, rubber valves, couplings, tubing, mats and sundry other rubber goods.

The Frontier Tire and Rubber Co., Buffalo, New York, issued about the 4th of July a little card appropriate to the season of special patriotism, as on its front side it shows the American Flag waving in the breeze, while on the other side it gives some tables which the owner of the automobile will find convenient for reference. These tables show the correct pressure for tires, interchangeable tire sizes and the proper tire inflation.

The Westinghouse Electric and Manufacturing Co., East Pittsburgh, Pennsylvania, recently sent out a 32-page pamphlet designed as "Circular No. 1094," devoted to the Westinghouse Turbo-Alternators. The pamphlet is generously illustrated and shows the turbine generators made by this company as installed in a great many of the leading power plants in the United States. The interesting statement is made in the pamphlet that during the past 17 years there has been a revolution in the design of electric power plants. It continues: "The superior economy of the turbo-generator unit, not only in steam consumption, but in first cost, attendance and in maintenance as well, and the reduction it has effected in general plant investment, in real estate, buildings and foundations, has practically eliminated the large slow-moving reciprocating engine-driven sets from the serious consideration of the modern power-plant engineer and designer."

The Manhattan Rubber Manufacturing Co., New York, has recently issued a little six-page folder descriptive of its "Condor" rubber belting, which the company states is equally good for transmitting power, elevating or conveying material. In addition to a description of this belting, the folder gives a comprehensive price list of this belting in widths varying from one to 60 inches, and in thicknesses from two to eight-ply.

FACTORY VENTILATION AND HOW TO GET IT.

A FEW years ago, manufacturers had an idea that there was just so much work in a man and that they could get it out of him regardless of what his surroundings were. But that venerable theory has been exploded, for the manufacturer realizes now that to get the maximum amount of work out of his employees, they must be surrounded by conditions that make it possible for them to do their best. Plenty of light, the proper temperature, and above all—good ventilation—are now prime considerations with all factory owners.

It sometimes happens, however, that while an employer's intentions are good, his methods are not such as to effect the desired results. For instance, in the matter of heat and ventilation—air should not be blown on hot machines and presses to cool them off. More heat is generated in that way; exactly on the principle of the cold air box of the furnace. Heat should be removed at the highest point possible; and where a fan is used there should not be an open window nearby nor any leakage where the currents can short-circuit. Gasoline fumes are best removed at the floor.

Many times in cold winter weather some factory superintendent will be found trying to remove steam in some exceedingly expensive way. The Autoforce System now used in many large rubber factories, has been devised to eliminate the expense and the danger of the power fan. The principle of the Autoforce System is the simple one of working with rather than against nature. The natural air currents are usually sufficient for purposes of ventilation and for carrying off excess heat.

The saw-tooth roof gives the steady northern light, but the heat in the peak is like the attic of a house. This is where an Autoforce Air Pump must be used; nothing else will accomplish the result. Heat should be utilized in winter, but should be made to remove itself in summer, when it creates friction, curtails efficiency of the help, and is dangerous.

THE HARDMAN COMPANY LOST BUT LITTLE.

The loss at the fire in the factory of the Hardman Tire and Rubber Co. at Belleville, New Jersey, which occurred in June and was mentioned in our July issue, was not as great, we are very glad to say, as was first reported. The fire broke out in one end of the hard-rubber department and the entire loss of stock and in damage to the building only amounted to some \$15,000 which was fully covered by insurance.

THE OBITUARY RECORD.

ALFRED N. MAYO.

ALFRED N. MAYO, treasurer of the Fisk Rubber Co., Chicopee Falls, Massachusetts, died, June 26, at his home in Springfield, Massachusetts.

Mr. Mayo was born in Springfield and had made that his home practically during his whole life of 68 years. He was one of the prominent business men of that city. In addition to his position in the Fisk Rubber Co., he was identified for a number of years with the firm of A. N. Mayo & Co., and at the time of his death he was president and treasurer of the Merrimack Paper Co., of Lawrence; treasurer of the Knox Automobile Co., of Springfield; president of Dexter P. Lillie & Co., of Indian Orchard; and was connected with the Standard Brick Co., of Springfield.



ALFRED N. MAYO.

He served in the Civil War as a member of the 46 Massachusetts Regiment, and in 1885 and 1886 he was a member of the common council of his city. He was highly esteemed in the business circles of western Massachusetts, where, owing to his many business connections, he was widely known. He was married, in 1870, to Miss Julia Billings, of Springfield, who survives him, together with three daughters, Mrs. H. G. Fisk and Mrs. E. O. Sutton, of Springfield, and Mrs. W. P. Schnell, of Seneca Falls, New York.

The funeral was held on the afternoon of June 28, at his home, the officiating clergyman being the Rev. Dr. Neil McPherson, of the First Church, to which Mr. Mayo belonged.

ABRAHAM STRAUSS.

Abraham Strauss, the senior partner and founder of the firm of Feist Strauss, Frankfort-on-Main, Germany, died in June at the age of 76 years. Mr. Strauss founded this firm, one of the largest scrap rubber houses in Europe, in 1867, and had been actively identified with it up to the time of his death.

JOSEPH V. SELBY.

Intelligence has been received of the death on July 19, of Joseph V. Selby, the Pacific coast manager of the Boston Woven Hose and Rubber Co. Mr. Selby had been connected with this company for quite a number of years, and was located at San Francisco. While he was not widely known in the East, he had an extended acquaintance throughout the Pacific coast, and was one of the prominent rubber men of that section.

He was a native of Massachusetts, where he was born 61

years ago, but had lived on the Pacific coast for a good many years. He was prominent in social circles of San Francisco, as well as in business circles. He is survived by five children, three daughters and two sons.

THE EDITOR'S BOOK TABLE.

EL HULE, SU HISTORIA, NATURALEZA, CULTIVO; QUIMICA Y Tecnica: (Rubber—Its History, Composition, Cultivation, Chemistry and Technique.) By William F. Dern, Technical Director of the Mexico Latex Co., Mexico, 1912. [Cloth, 8 vo, 130 pp.]

WHILE much has been written on the general history of rubber, the salient points of the subject are summarized in the treatise by Mr. Dern, in such a manner as to effectively recall the facts to the mind of the busy rubber man. Attention is then called to the various plants yielding rubber, which by degrees have enriched the field of industrial botany, through the successful efforts of energetic pioneers to overcome natural difficulties. The superiority of *Hevea* in quality and abundance of product is urged, its cultivation being recommended in warm and humid locations, and that of *Manicoba* in more temperate situations.

Caucho is dealt with in detail from a botanical, as well as a cultural, point of view, and with reference to both Amazonas and Peru.

As to *Castilloa*, Mr. Dern comments upon the fact that the Republic of Mexico occupies the first place in the production of that variety. The development which has taken place in the States of Tabasco and Chiapas, is attributed to the liberality with which the United States has invested capital in rubber plantations.

In his capacity of technical director of the Mexican Latex Co., its operations are fully described by Mr. Dern, by whom it was established in 1910 at San Juan Banutista, State of Tabasco. He had invented a method of coagulating latex on a large scale, with a view of producing a mass as free as possible from resin and other hurtful substances.

The company buys the latex in the crude or liquid state, from a number of estates in the district named, which, by the addition of a special powder, invented by Mr. Dern, is preserved for several months in a liquid state, with only an unimportant change in its natural condition. It therefore is not affected by the concussions received in the course of transport by means of mules. On reaching the factory, the latex is immediately deposited in specially constructed machines. By the addition of boiling chemical liquid, and after 800 revolutions of the machine, the product is in fifteen minutes ready for pressing, and after the water has been extracted, can be shipped in blocks. Mr. Dern expresses the hope that this process will be adopted in other countries.

The later chapters deal with various points affecting rubber cultivation, but the real interest of the treatise centers in the description of the Dern process, which thereby renders the book of value to planters in general.

CONSUMERS' RECEIVERSHIP ENDED.

Presiding Justice Tanner of the Superior Court of Rhode Island entered a final decree, July 2, in the case of Terrence McCarty against the Consumers' Rubber Company of Bristol, allowing the report to the receiver, Robert S. Emerson, and granting his discharge.

Mr. Emerson's report shows a total of \$117,365.98 received and \$117,151.44 paid out during the period of his receivership. He had disposed of merchandise valued at \$113,859.71, and had transferred to the newly organized Consumers' Rubber Company merchandise and personal property worth \$49,864.61, cash amounting to \$1,364.16 and bills receivable footing up \$2,359.01.

New Rubber Goods in the Market.

LONG DRIVING GOLF BALLS.

THE three cuts shown herewith represent three different patterns of golf balls. The first one is known as the "Arch Colonel"; the second, the "Green Star Colonel," and the third, the "Crescent Colonel." The first two differ only in their marking, the "Arch Colonel" having an entirely new sunken mark-



ST. MUNGO GOLF BALLS.

ing, while the "Green Star Colonel" has an eight-pole pebble marking. The "Crescent Colonel" is a new ball just brought out and is marked like the "Arch Colonel," but is a floating ball. The manufacturers of these balls make very confident assertions about their long-driving qualities. [St. Mungo Manufacturing Co. of America, Newark, New Jersey.]

THE DIAGONAL BLOCK TIRE.

A new heavy duty truck tire has been invented by Albert L. Siegrist, Akron, Ohio.

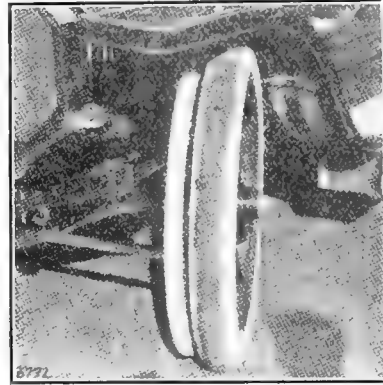
The special feature of this tire is that every block is independently demountable without interfering with other blocks. This removal feature is accomplished by the use of two "U" shaped head bolts running downward through the felloe, and a bolt crosswise through the downward flange. With all bolts in place they become a solid mass, eliminating the strain from any one particular block.



The blocks are placed on the wheel diagonally, a feature that gives a smooth continuous roll and also prevents skidding and allows for rubber displacement. [The Diagonal Block Tire Co., of Urbana, Ohio.]

AUXILIARY SOLID TIRES.

To take the place of the spare wheel usually carried for taxicabs and light vans, the Blackwell rim has been devised, which consists of a light pressed-steel rim, of which an integral part is a continuous skeleton form of flange. The rim holds a length of light solid tire, and the flange serves to fasten this direct to the felloe of the wheel, keeping it in permanent position on the inside of the wheel. The outer diameter of this inner rim comes within about 3 inches of the ground when the pneumatic tire is fully inflated. But when the pneumatic tire is deflated, this auxiliary solid tire meets the ground and does the

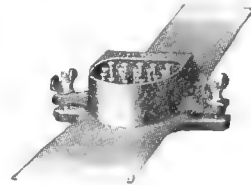


BLACKWELL RIM FOR AUXILIARY SOLID TIRES.

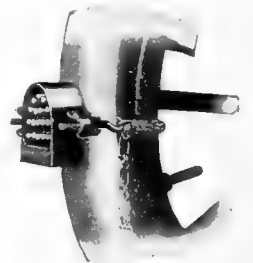
work of the incapacitated pneumatic tire; avoiding the damage that would be done the pneumatic tire if continued in use in its deflated condition. [The Blackwell Rim Co., Stourbridge, Worcestershire, England.]

THE ADAMSON AUTO-VULCANIZER.

Many a motorist, when his tire has been punctured far from home, would have given a great deal for a little 3-pound vulcanizer that would have repaired the puncture in 15 minutes. As a matter of fact he need not have given very much, if he had been sufficiently provident to lay in beforehand the Adamson Auto-Vulcanizer, which costs but a few dollars, takes but little room and is said to repair the ordinary puncture in a quarter of an hour.



The two accompanying cuts show this repairer at work; one showing it on the outer shoe, the other clamped to the deflated inner tube. An interesting feature of this small vulcanizer is the fact that its temperature is, to a very considerable extent, under automatic control. When it is needed for a repair, an ounce of gasoline is poured into it and ignited. After it reaches the proper temperature for vulcanizing, a further increase of temperature is avoided by its peculiar construction, which is so planned that when the temperature of the gasoline reaches a certain degree, the volume of gas given off by it forces the zone of combustion up above the heat-conducting members of the vulcanizer. This permits the vulcanizer to cool somewhat, the flame lowers and the proper degree of heat is again attained.

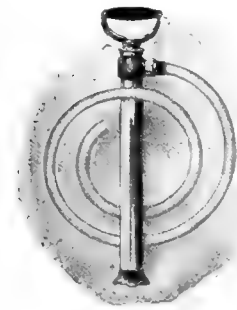


It might be said in passing that this convenient little vulcanizer has been widely imitated. [The Adamson Mfg. Co., East Palestine, Ohio.]

Should be on every rubber man's desk—The Rubber Trade Directory of The World, 1912.

A BILGE PUMP FOR POWER BOATS.

It is estimated by people familiar with the subject that there are two hundred thousand power boats ranging from 18 to 40 feet in length, used in American waters at the present time.



The accompanying cut shows a device which makes it very easy and convenient to remove the bilge water from those boats. It is a double-acting bilge pump. The pump is 15 inches long under the spout and is supplied with 5 feet of rubber hose. Of course it can be used in any other small craft—row boats and sail boats—but its particular utility is in the small power boats. [A. B. Sands & Sons Co., 24 Vesey street, New York.]

ANOTHER SPRING TIRE.

It is not the fault of our American inventive geniuses that the pneumatic tire still continues in general use, for there are as many bright and active minds at work trying to invent something to take the place of the pneumatic tire, as there are figuring on the political chances of the new Third Party.



"COMFORT" TIRE.

Here is an illustration of a spring tire called the "Comfort," which does away with the pneumatic feature. As will be seen in the cut, around the felloe of the wheel there is a series of springs, some of them semi-elliptical and some of them extension coils. Outside of these springs there is a metal rim. Metal side plates are fastened rigidly to this outside rim, but play back and forth over the inner felloe, thus keeping the springs in place. The resiliency is produced by the springs in place of the air enclosed in the usual inner-tube of the pneumatic tire. The outer rim has a solid rubber tread.

A guarantee of 10,000 miles goes with this new tire. [Davies Manufacturing Co., Cleveland, Ohio.]

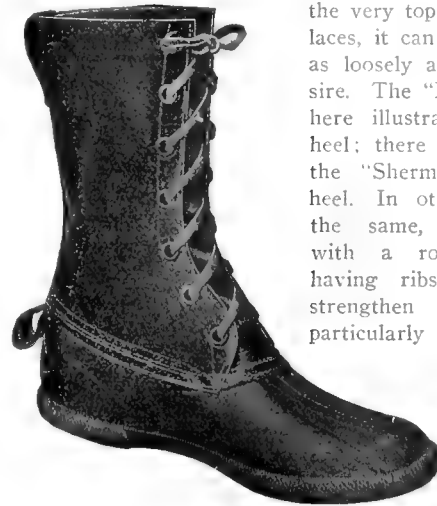
A QUICK VULCANIZING CEMENT.

If the claims made for it by its manufacturers, the American Tire and Rubber Co., Akron, Ohio, are correct, the "Five-Minute-Cure" cement produced by that company ought to become very popular, for the company claims that it can be used equally well in the making and repairing of casings, inner-tubes and general repair stock, and, moreover, that this cement will cure perfectly in five minutes. The company likewise maintains that this cement, owing to certain heat resisting properties it possesses, cannot be over-cured.

Consular report number 9162 states that a well-known firm in a foreign country invites price lists and catalogues for solid rubber tires for large 14-passenger automobiles. The American consul who forwarded the request states that correspondence should be in English, and price lists should be in English currency.

BOOTS OF RUBBER AND LEATHER.

The accompanying cut shows a boot made of a combination of rubber and leather. The foot is a rubber shoe and to this is attached a top of chrome-tanned waterproof leather. This makes

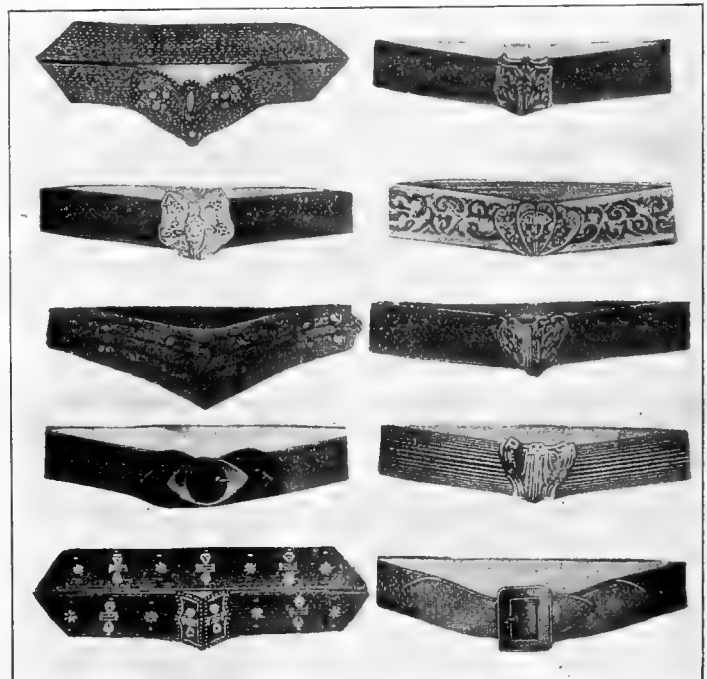


THE "BEACON" BOOT.
Shoe Co., Beacon Falls, Connecticut.]

a high warm boot, waterproof to the very top. Being equipped with laces, it can be fitted as snugly or as loosely as the wearer may desire. The "Beacon" boot, which is here illustrated, is made with a heel; there is another boot called the "Sherman," made without a heel. In other respects they are the same, both being finished with a rolled edge sole, and having ribs over the vamp to strengthen the shoe. They are particularly good for snow-shoeing and winter hunting. They are made from 10 to 14 inches in height and in all sizes for both men and women. [The Beacon Falls Rubber

THE FASHIONABLE ELASTIC BELT.

The use of elastic fabrics for ladies' belts is something that has of late become a very general fashion. At first thought it would seem as if such fabrics would not give a very wide range in variety of styles to suit individual tastes. Such, however, is



TYPES OF ELASTIC BELTS.

far from being the case. Rubber thread is today woven into a great variety of fabrics of any color or shade, and ornamented with fancy stitches, beads, jet and even jewels. Then, too, the belts come in a great variety of widths and shapes and with buckles in gun metal, gold and silver. The accompanying illustrations show a few of the hundreds of styles of ladies' belts made from elastic fabrics.

News of the American Rubber Trade.

REPUBLIC RUBBER CO.

THE directors of The Republic Rubber Co., Youngstown, Ohio, have authorized the calling of a stockholders' meeting to be held early in August for the purpose of increasing the authorized capital of the company from four millions to ten millions. The capital will consist, after the increase, of six million common and four million preferred stock.

No definite announcement has been made as to amount of the additional capital to be issued this year. It is understood, however, that the steady growth of the company's business will require new capital before another season.

The directors have also authorized the construction of a large modern reclaiming plant, which, with the completion of the five-story building now under construction, will give considerably greater capacity.

It has been reported that there will be a common stock dividend of some size after the increase of capital has been provided, but when interviewed, President Thomas L. Robinson stated that there had been no definite action taken in regard to the stock dividend.

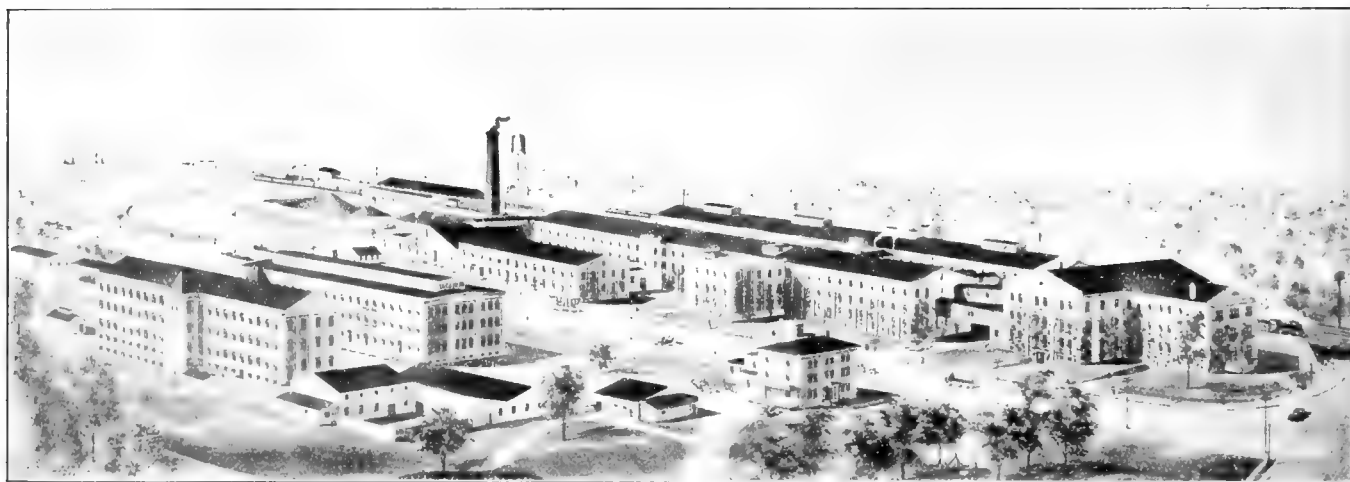
STEIN VS. STEIN.

The Stein Laplock Tire Co., a New York corporation, has brought suit against the Stein Rubber and Tire Co., also of New York, for \$10,000 damages, charging unfair competition and the unauthorized use of the name "Stein" and also asking for a permanent injunction restraining the latter company from using the name "Stein" in connection with rubber tires.

The Stein Laplock Tire Co. has been doing business since February, 1910, located on upper Broadway, New York City. The Stein Rubber and Tire Co. was formed in October, 1911, and is located in the vicinity of the other concern.

THE HARTFORD CO. TO INCREASE ITS PLANT.

The Hartford Rubber Works Co., Hartford, Connecticut, has started on some extensive alterations, which probably will require seven or eight months for their completion. It is installing a new boiler plant that will more than double the boiler capacity of the works. A new building, 50 by 100 feet, will be erected for this purpose, to be made of reinforced concrete. In addition an automatic carrying system will be put in the



HARTFORD RUBBER WORKS CO.

THE "B & R" PLANT RUNS DAY AND NIGHT.

The B & R Rubber Co., North Brookfield, Massachusetts, reports sales for the first six months of the current year as 50 per cent. in advance of the same period a year ago. Notwithstanding the fact that new equipment costing \$80,000 has been installed in the factory during the last six months, the company is hardly able to keep up with its orders, even though running on a night-and-day ticket. It opened a new department some little time ago for the manufacture of jar rings, and this business has grown so rapidly that the company has found itself compelled to refuse quite a number of contracts, as it did not see any way by which these contracts could be filled on time. Another recent department, which is also kept running on full time, is devoted to the manufacture of short-length hose for automobile radiators.

A new building has recently been completed to be used exclusively for compounding. This work was previously done in the main manufacturing building, but was crowded out by the growth of other departments. The stock department and shipping room have also been crowded out from the main building and are now being accommodated in the building expressly equipped for that work.

factory that will obviate all coal-carrying by hand, as the coal will be conveyed directly to the boilers by the new mechanism. Certain "welfare" features are also being installed in the building in the way of shower baths and other conveniences for the employees.

A new smokestack, to be 200 feet high, will be another of the immediate improvements. It is expected that later a general building for manufacturing purposes will also be added. The accompanying cut shows the plant as it stands today, before starting on the additions mentioned above.

THE NEW UNITED STATES TIRE CO.

The new tire factory of the United States Rubber Co., alluded to in President Colt's last annual report, and further referred to from time to time by officers of that company, and of the United States Tire Co., is to be, according to an official statement, the largest tire factory in existence, with a capacity of 5,000 tires a day. The location of this new factory has not yet been announced, although there is a report that it will probably be in the vicinity of Chicago.

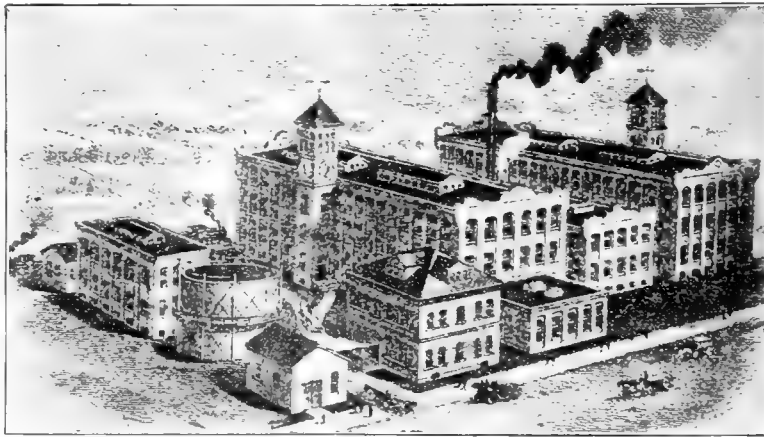
Should be on every rubber man's desk—The Rubber Trade Directory of The World, 1912.

STILL ANOTHER NEW PLANT FOR THE WALPOLE RUBBER CO.

About a year ago the Walpole Rubber Co., controlling the Massachusetts Chemical and certain other companies, made extensive additions to its plant at Walpole, Massachusetts. Although these were expected to meet the needs of the company for some time to come, only a few months had passed before the need of larger space became evident.

Not only has there been a very rapid increase in the production of insulating tapes and compounds, mechanical and other rubber goods of particular interest to the electrical industry and the electric railway field, but also in the manufacture of druggists' supplies, including the "Walpole" seamless hot-water bottles and syringes, of rubber heels for man and horse, and of a great variety of rubber clothing, while coincidentally there has been developed a new automobile tire known as the "Walpole No-Stone-Bruiise Tire," which has so quickly jumped into public favor as to still further overburden the plant.

Action looking to an immediate increase in manufacturing space became so imperative that it appeared undesirable to wait for the construction of additional buildings. Fortunately it has been possible to secure only five miles away, in Foxboro, Massachusetts, a complete plant designed with unusual care for the manufacture of a product since discontinued. This plant embraces something over three acres of floor space. As soon as the installation of the machinery is completed it will be possible to turn out at least a thousand tires per day. Additional space will then be released in the Walpole plant for the manufacture of an increasing variety of products in the lines still retained at that point.



NEW PLANT OF WALPOLE RUBBER CO.

NEW INCORPORATIONS.

Canadian Overman Co., Inc., July 4, 1912; under the laws of New York; authorized capital, \$50,000. Incorporators: W. Albert Pease, Jr., 340 Madison avenue; Albert Z. Gray and Lusius Wilmerding, both of 5 Nassau street, all of New York. Location of principal office, New York. To deal in tires, etc.

Princes Rain Coat Co., June 28, 1912; under the laws of New York; authorized capital, \$1,500. Incorporators: Harry Stern, 1006 Intervale avenue, Bronx; Henry J. Block, 2412 Seventh avenue, and Elias Kantor, 1172 Jackson avenue, Bronx, all of New York. Location of principal office, New York. To manufacture rubberized clothing, etc.

Rolo Manufacturing Co., June 10, 1912; under the laws of Delaware; authorized capital, \$100,000. Incorporators: W. F. P. and W. I. N. Lofland and John S. Collins, Jr., all of Dover, Delaware. To manufacture and deal in the sale of rubber and rubber substitutes.

Russian Tyre Sales Co., July 2, 1912; under the laws of New York; authorized capital, \$30,000. Incorporators: Otto Braunschweig, 601 West 162d street, and H. Ray Paige and Maud Steinway Paige, both of 304 West 107th street, all of New York. Location of principal office, New York. To deal in rubber, tires, etc.

Tanney Rubber Co., July 1, 1912; under the laws of New York; authorized capital, \$10,000. Incorporators: Harry, Jacob and Philip F. Tannenbaum, all of 498 East 171st street, New York. Location of principal office, New York.

THE HOOD RUBBER CO. MOVES FOUR DEPARTMENTS.

On August 1, 1912, the Hood Rubber Co., Boston, Massachusetts, moved four of its departments, namely: Footwear Sales Department, Purchasing Department, Bookkeeping Department and Correspondence Department from its Boston office to the Factory Administration Building, Watertown, Massachusetts.

HOOD COMPANY TAKES OVER SHAWMUT TIRE CO.

Under date of July 21, 1912, the Shawmut Tire Co., 103 Bedford street, Boston, Massachusetts, sent out the following announcement:

"Our tire and tire accessory business has now reached such a volume that we find it expedient to reorganize our methods of handling the same. In order to further enlarge and economize the facilities in the tire business we have decided to move the different departments to the Administration Building of the Hood Rubber Co. at Watertown, Massachusetts.

"The final result of this move is that the Hood Rubber Co., who, as you know, are the manufacturers of these goods, will, on August 1, 1912, take over and sell, bill, collect accounts and assume the business formerly done by the Shawmut Tire Co. All obligations of this company will be assumed by the Hood Rubber Co. All accounts due this company and all merchandise or property of this company will become the property of the Hood Rubber Co. After August 1, therefore, you will address all your communications, make all remittances and conduct your business with and in the name of the Hood Rubber Co., Watertown, Massachusetts."

TRADE NOTES.

The Hood Rubber Co., Boston, Massachusetts, has become a member of the Motor and Accessories Manufacturers' Association.

A. L. Devault has resigned from the United States Tire Co., with which he has been connected in Detroit, and has associated himself with the Federal Rubber Manufacturing Co., of Milwaukee, for which he will shortly open a Detroit branch.

The B. F. Goodrich Co. has declared an initial dividend of 1 per cent. on the common stock, payable August 15 to stock of record August 5.

William O. Porter tendered his resignation as president of the Intercontinental Rubber Co. on July 21 to accept the vice-presidency of the Guaranty Trust Co. Mr. Potter will serve as chairman of the board of directors of the Intercontinental company.

The general offices of the United States Tire Co. have been moved to the new United States Rubber building, Broadway and Fifty-eighth street, New York. This structure, the tallest north of Forty-second street, has recently been completed and will be utilized in future as the home of the United States Rubber Co. and its subsidiary companies. The building is twenty stories high. The United States Tire Co. will occupy the basement and sub-basement as a stock room; the ground floor for its New York branch and the fifteenth, sixteenth and seventeenth floors as general offices. The company has over 400 employees in its general offices. The New York branch store will be moved into the new quarters about August 15.

TRADE NOTES.

The Great American Rubber Co., of Conshohocken, Pennsylvania, is making an automobile tire both in the regular clincher and quick detachable clincher type, which, according to the claims of the company, is cured in such a way that all possibility of undercuring or overcuring is eliminated. These tires are cured in molds so constructed that the rubber is everywhere equally exposed to the steam. They are made in sizes from 28 inches by 3 inches up to 37 inches by 5 inches.

The Bemis Rubber Co., Watertown, Massachusetts, is equipping a rubber reclaiming plant at that place.

The Fisk Rubber Co.'s new branch building in Pittsburgh is located in the very heart of the automobile district, at 5933 Baum street. It is two stories high, 95 feet long by 30 feet wide. It is finished in white tile front and yellow Tarentum brick on the sides. The name of the Fisk Rubber Co., in raised letters, extends across the front of the building between the second and third stories. Every facility for giving customers prompt and efficient service will be found in this finely-equipped building, and the brisk business that is being done is proof of the appreciation by tire users of the company's service.

The A. S. Brock Rubber Co., 120 Milk street, Boston, during the two years it has been located at that place, has built up a very satisfactory business in the jobbing of general rubber goods.

The "No-Stone-Bruise," a new type of Bailey Tread Tire, made by the Walpole Rubber Co., has proved exceedingly successful and already enjoys a wide popularity among users of tires.

The brokers who recently offered the 7 per cent. preferred stock of the Walpole Rubber Co., report that the entire issue was oversubscribed and that the common stock, which accompanied the preferred as a bonus, is selling at around 60.

The New York Stock Exchange has listed the following-named securities of the United States Rubber Co.: \$175,000 of 8 per cent. non-cumulative first preferred stock, \$35,000 of 7 per cent. non-cumulative second preferred stock and \$1,334,000 common stock; also \$5,000,000 common stock, on July 8 on notice of issue. This will make a total of \$40,000,000 first preferred, \$10,000,000 second preferred and \$30,000,000 common stock to be listed.

The Alice and Millville mills of the Woonsocket Rubber Co. will be closed for two weeks, from August 2 to August 16. Superintendent Schlosser states that this vacation is for the purpose of giving the employes a much needed rest.

The Intercontinental Rubber Co. has issued a statement in which it brands as without foundation a report that the Madero interests have obtained control of the company. It says:

"There is going to be no change in the company's management for the present and nothing in the way of any change in the near future is even contemplated. We are on the best of terms with the Maderos and there is therefore no reason to believe that they would try to force us out now that they are in control of Mexico."

The two factories of the Boston Rubber Shoe Company, located at Edgeworth and Essex Falls, Massachusetts, will close down on the first of August for a two-weeks' vacation, the company utilizing the time for general repairs.

A FINE OPENING FOR SOME GOOD MEN.

A prominent New England rubber manufacturing company is looking around for salesmen for its mechanical rubber goods. It wants to cover New York and Pennsylvania, the South and the Pacific Coast. This offers a fine opportunity for three good men.

CAPT. APPLETON MEETS THE KING.

On July 11 a detachment of 50 members of the Ancient and Honorable Artillery Company of Boston arrived in London and was greeted at the railroad station by a band and a large escort of the Honorable Artillery Company of London, under the command of the Earl of Denbigh. The Ancients were vociferously cheered as they marched to their hotel. There a reception was held, the Earl of Denbigh making a short speech and Capt. Francis H. Appleton, commander of the Ancient Company, replying. On July 15 King George reviewed the distinguished Bostonians on the Buckingham Palace grounds, and had his photograph taken standing between the Stars and Stripes and the regimental colors of the Boston company. Capt. Appleton and the other officers were presented to King George and Queen Mary.

MR. DE LISSER WITH THE AJAX-GRIEB RUBBER CO.

Horace De Lisser has resigned his position as vice-president of the United States Motor Co. and become associated with the Ajax-Grieb Rubber Co. as chairman of the board of directors.

Mr. De Lisser has been with the Motor Co. since its organization, but in going to the Ajax-Grieb Co. he returns to the tire business, with which he was formerly connected. He sailed on July 30 on the "Kaiser Wilhelm Der Grosse," for the purpose of looking into the situation in Europe and with a view of erecting a plant on the Continent for the company's increasing foreign tire business.

MR. ASKAM WITH THE N. Y. RUBBER RECLAIMING CO.

It is announced that William F. Askam, one of the oldest reclaimers in this line of business, has been secured by the New York Rubber Reclaiming Co., New York City, to act as superintendent of its plant. He expects very soon to be turning out his own well-known grades of shoddy, together with others intended to meet the special requirements of the insulating trade.

JOSEF SCHERER IN THE UNITED STATES.

Josef Scherer, a member of the American Association of Commerce and Trade, Berlin, recently arrived in this country for the purpose of making business connections for the distribution of American rubber shoes throughout the Continent. Mr. Scherer is managing director of B. Strassberg & Co., Limited, and also manager of the Austro-Hungarian Rubber Shoe Co., and Max Scherer & Co., of Vienna and Berlin.

PRESIDENT VAIL DONATES A LIBRARY.

President Theodore N. Vail, of the American Telegraph and Telephone Co., recently elected a director of the United States Rubber Co., has donated to the Massachusetts Institute of Technology a valuable technical library of 30,000 volumes on electricity and electrical engineering. This library was collected by the late George Edward Dering, of England, and is considered the most complete of its kind in existence. It is valued at \$100,000.

PERSONAL MENTION.

Edgar E. Fay, sales manager of the Boston Woven Hose and Rubber Co., Cambridge, Massachusetts, started on Thursday, July 11, for a trip to the Pacific Coast, adding pleasure to business by a side trip of a few days at Yellowstone Park. Mr. Fay expects to be away from six to eight weeks and is looking forward with great pleasure to seeing business friends, whom it has not been his privilege to know personally.

Col. W. A. Roebling, Trenton, New Jersey, has made a large contribution of current books to the Public Library of the village of Roebling, New Jersey.

Benjamin F. Blye has resigned his position as assistant superintendent of the Stoughton Rubber Co., Canton, Massachusetts, after 20 years association with that company. He has accepted the position as general superintendent of the Walpole Rubber Co., Walpole, Massachusetts.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for five weeks, ending July 27:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend (special), July 8, 1912—20%.

Week June 29	Sales 5,250 shares	High 66 $\frac{7}{8}$	Low 64 $\frac{7}{8}$
Week July 6	Sales 7,850 shares	High 67 $\frac{3}{4}$	Low 54 $\frac{3}{4}$
Week July 13	Sales 7,120 shares	High 54 $\frac{7}{8}$	Low 50
Week July 20	Sales 4,600 shares	High 53 $\frac{1}{4}$	Low 50 $\frac{1}{2}$
Week July 27	Sales 3,320 shares	High 53 $\frac{1}{4}$	Low 52 $\frac{1}{4}$

For the year—High, 67 $\frac{7}{8}$, May 21; Low, 45 $\frac{1}{4}$, February 1.
Last year—High, 48 $\frac{1}{2}$; Low, 30 $\frac{1}{2}$.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, April 30, 1912—20%.

Week June 29	Sales 1,900 shares	High 110 $\frac{1}{2}$	Low 108 $\frac{3}{4}$
Week July 6	Sales 2,800 shares	High 111 $\frac{1}{2}$	Low 110
Week July 13	Sales 1,900 shares	High 110 $\frac{7}{8}$	Low 108
Week July 20	Sales 2,100 shares	High 107 $\frac{3}{4}$	Low 106 $\frac{3}{8}$
Week July 27	Sales 3,000 shares	High 107 $\frac{3}{8}$	Low 105 $\frac{5}{8}$

For the year—High, 116, May 20; Low, 105 $\frac{5}{8}$, July 25.
Last year—High, 115 $\frac{1}{2}$; Low, 104.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, April 30, 1912—15%.

Week June 29	Sales 400 shares	High 81	Low 80
Week July 6	Sales 200 shares	High 81 $\frac{1}{2}$	Low 81 $\frac{1}{2}$
Week July 13	Sales 400 shares	High 81	Low 81
Week July 20	Sales shares	High	Low
Week July 27	Sales shares	High	Low

For the year—High, 85 $\frac{1}{2}$, May 21; Low, 75, January 23.
Last year—High, 79; Low, 66.

SIX PER CENT. TRUST GOLD BONDS, \$18,000,000.

Outstanding of the 1908 issue of \$20,000,000.

Week June 29	Sales 71 bonds	High 104 $\frac{5}{8}$	Low 104 $\frac{1}{4}$
Week July 6	Sales 29 bonds	High 104 $\frac{1}{2}$	Low 104 $\frac{1}{4}$
Week July 13	Sales 32 bonds	High 104 $\frac{1}{2}$	Low 104 $\frac{3}{8}$
Week July 20	Sales 33 bonds	High 104 $\frac{1}{2}$	Low 104 $\frac{1}{4}$
Week July 27	Sales 24 bonds	High 104 $\frac{1}{4}$	Low 104

For the year—High, 105, February 24; Low, 103 $\frac{3}{4}$, January 6.
Last year—High, 105; Low, 101 $\frac{3}{4}$.

RIGHTS.

Week June 29	Sales 50 rights	High $\frac{1}{2}$	Low $\frac{1}{2}$
Week July 6	Sales 1,700 rights	High $\frac{3}{4}$	Low $\frac{3}{4}$
Week July 13	Sales 3,200 rights	High $\frac{5}{8}$	Low $\frac{5}{8}$
Week July 20	Sales rights	High $\frac{1}{2}$	Low $\frac{1}{2}$
Week July 27	Sales 3,080 rights	High $\frac{1}{2}$	Low 7/16

For the year—High, — $\frac{3}{4}$, June 19; Low, —7/16, July 26.

INDIA RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta-percha for the month of May, 1912, and the first eleven months of five fiscal years, beginning July 1:

Months.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	Total.
May, 1912	\$218,179	\$98,773	\$722,586	\$1,039,438
July-April	1,918,285	1,323,060	5,984,279	9,225,724

Total, 1911-12	\$2,136,464	\$1,421,833	\$6,706,865	\$10,265,162
Total, 1910-11	1,922,510	1,969,688	5,918,425	9,810,623
Total, 1909-10	1,754,082	1,792,691	4,622,560	8,169,333
Total, 1908-09	1,371,586	1,208,473	3,468,945	6,049,004
Total, 1907-08	1,225,618	1,486,959	3,443,465	6,156,042

The above heading, "All Other Rubber," for the month of May, 1912, and the last eleven months of two fiscal years, includes the following details relating to tires:

Months.	For Automobiles.	All Other.	Total.
May, 1912	Values \$272,317	\$43,095	\$315,412
July-April	2,063,603	467,290	2,530,893
Total, 1911-12	\$2,335,920	\$510,385	\$2,846,305
Total, 1910-11	1,838,482	538,407	2,376,889

THE QUESTION OF GRAVITY IN RUBBER MANUFACTURE.

TO the Editor of THE INDIA RUBBER WORLD: Dear Sir—It is not my intention, or desire, to engage in a long drawn-out discussion, but I shall feel grateful to you for a few lines of your valued space to enable me to reply to the letter of W. T. Bonner in your last issue, criticising my article on "The Significance of Gravity in Rubber Manufacture," which appeared in the June issue.

Mr. Bonner has apparently failed to realize that my remarks were confined purely to the discussion of the interpretation of the gravity, not in manufactured articles, but in compounding ingredients such as shoddies, mineral filler, substitutes, etc. I purposely avoided discussing the significance of gravity in manufactured articles, wishing to confine myself entirely to the raw materials.

Mr. Bonner is undoubtedly correct in saying that the apparent gravity is an important consideration in manufactured articles, but his reasons for this statement are, to my mind, somewhat misleading. Except in a very few extreme cases, of which the manufacture of sponge stock is an example, it is always desirable that the manufactured article have a minimum of porosity. In other words, that the difference between the actual and apparent gravities be as small as possible. It is useless to try to control the uniformity of the manufactured articles from the determinations of *apparent* gravity, because variations in the *actual* gravity of the raw materials may compensate irregularities due to variations in the apparent gravity of the manufactured article. The result would be that although the apparent gravity would be constant, its porosity could vary. Of course, if in each case the actual gravity had also been taken, this variation would be observed, but this necessitates a full understanding of the relationship of actual and apparent gravity.

On the other hand, apparent gravity is of the greatest importance from the standpoint of a factory cost department. In this case actual gravity is irrelevant. For all goods that are sold by bulk or linear measure, the manufacturer is not interested in the weight per pound of his compound, but in the weight per unit of volume. This is a point which many manufacturers do not realize, yet it repeatedly happens that of two compounds, that one, the cost of which is higher, may be used more economically in goods that are sold by bulk; provided its gravity is lower. In figuring the price of goods sold by bulk, it is always necessary to have in mind, not the cost per pound, but the cost per cubic foot. This, of course, involves a knowledge of the gravity, obviously the apparent gravity and not the actual.

Yours very truly, L. E. WEBER.

Boston India Rubber Laboratory, July 9, 1912.

THE UNITED STATES TIRE COMPANY BUILDS IN BOSTON.

The United States Tire Co. is going to erect a substantial structure in Boston at the junction of Commonwealth avenue and Beacon street. The company hopes to have this building ready for occupancy by the beginning of the new year and intends, at that time, to move into it from its present location on Boylston street.

The building, which is to be of fireproof construction, will have five stories. The manager's office will occupy the street floor, along with the general salesroom. The main offices will be on the second floor, and the floors above will be devoted to stock. The truck tire department is to be located in the basement, and there also will be the service department of the branch. The service department will be conducted entirely separate from the sales department. The plans call for a driveway to the basement for the convenience of customers. This building will have one of the most prominent locations in the newer automobile district, facing the square, where Commonwealth and Brookline avenues and Beacon street come together.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED JUNE 4, 1912.

- N**O. 1,028,109. Vehicle wheel-rim. J. E. Hale, assignor to The Good-year Tire & Rubber Co.—both of Akron, Ohio.
- 1,028,141. Inflatable life-saving equipment for soldiers. E. W. Scowden, Jamestown, N. Y.
- 1,028,187. Hose couplings. C. E. Campbell, Portland, Ore., assignor to S. S. Keim, Newberg, Ore.
- 1,028,331. Vehicle tire. W. J. Cunningham, Philadelphia, Pa.
- 1,028,334. Puncture-proof tire. M. De Viese, Fresno, Cal.
- 1,028,433. Marine life-saving jacket. W. Carroll, West Silvertown, London, England.
- 1,028,490. Grip-tread and mud-shoe for automobiles. C. V. Pugh, St. Louis, Mo.
- 1,028,628. Tire-inflating apparatus. M. F. Stolberg, Toledo, Ohio.
- 1,028,676. Attachment for vehicle wheels. S. A. Cherry, Nashville, Tenn.
- 1,028,727. Vehicle wheel. F. Householder, Guthrie, Okla.
- 1,028,783. Motorcycle driving belt. C. T. L. von Radenau, Islington, England.
- 1,028,826. Bathing cap. T. W. Miller, assignor to The Faultless Rubber Co.—both of Akron, Ohio.
- 1,028,827. Insulated wire-saturating machine. P. A. Nehring, assignor to Nehring Insulated Wire & Mfg. Co.—both of Sycamore, Ill.

Trade Marks.

- 59,290. Emil Rath, Frankfurt-on-the-Main, Germany. The word *Infantibus*. For gutta percha and india rubber nipples.
- 61,628. Ashe, Noyes & Small Co., Auburn, Me. The word *Lepracaun*. For shoes, etc.
- 62,280. Samuel Buyer, New York. The monogram of S and B in a circle. For hose supporters, dress shields, etc.

ISSUED JUNE 11, 1912.

- 1,028,889. Spring-cushion tire for vehicle wheels. A. J. Layon, Lowell, Mass.
- 1,028,890. Medical inhaler. J. Leach, Blackburn, England.
- 1,028,908. Closure for weatherproof garments. L. T. Sawyer, Newton, Mass.
- 1,028,926. Non-inflammable lubricant and process of preparing the same. J. W. Aylsworth, East Orange, N. J.
- 1,029,027. Pneumatic tire protector. A. H. Rawitzer, Omaha, Neb.
- 1,029,110. Ventilating cushion for footwear. F. J. Drobinski, New York, assignor to Revere Rubber Co., Chelsea, Mass.
- 1,029,132. Overshoe for horses. H. Kassik, Yonkers, N. Y.
- 1,029,177. Spring wheel. W. T. Dulany, Jr., Arlington, N. J.
- 1,029,189. Window sash. W. S. Hamm, Hubbard Woods, Ill., assignor to The Adams & Westlake Co., Chicago, Ill.
- 1,029,215. Tire protector or shield. A. H. Morton, Cleveland, Ohio.
- 1,029,220. Removable heel. Frank Powyszenski, Chicago, Ill.
- 1,029,263. Vehicle tire. E. H. Bingham and T. Tominski, San Francisco, Cal.
- 1,029,299. Spring wheel. W. H. Howsley, Jr., Adams, Tenn.
- 1,029,307. Method of making pneumatic tire casings. N. W. McLeod, assignor to American Tire Co.—both of St. Louis, Mo.
- 1,029,323. Resilient vehicle wheel. H. J. Shetty, Scranton, Pa.
- 1,029,340. Automatic tire pump. A. Brest, New Castle, Pa.
- 1,029,429. Spring hub. G. H. Davis, Advance, Mo.
- 1,029,553. Emergency tire. DeWitt Nelson, Minneapolis, Minn.
- 1,029,569. Vehicle tire. A. Kleinatland, assignor to Atlantic Punctureless Tire Co.—both of Paterson, N. J.

Trade Marks.

- 62,590. Empire Tire Co., Trenton, N. J. The word *Mikado*. For pneumatic tires.
- 62,868. Zimmerman & Zimmerman, Inc., Philadelphia, Pa. The words *Zee Zee*, with figure of Z between. For vehicle tires and tubes of rubber.
- 63,036. Mary E. Claffin, Philadelphia, Pa. The name *Waldo M. Claffin*. For boots and shoes.
- 62,265. I. B. Kleinert Rubber Co., New York. The word *Flexo* in double diamond. For dress shields.

ISSUED JUNE 18, 1912.

- 1,029,594. Horse boot or shoe. C. W. Conklin, Stony Brook, N. Y.
- 1,029,625. Pneumatic automobile wheel. O. C. Olney, Cincinnati, Ohio.
- 1,029,632. Vehicle wheel tire. W. W. Revell, Walden, N. Y.
- 1,029,633. Vehicle wheel. W. W. Revell, Walden, N. Y.
- 1,029,644. Pneumatic spring for vehicles. A. C. Vail, Selah, Wash.
- 1,029,652. Insulating material. J. H. White, Pittsburgh, Pa.
- 1,029,684. Vulcanizer. A. C. Hopkins and H. M. Morgan, Princeton, Ind.
- 1,029,689. Vaginal syringe. G. J. Kelly, Attleboro, Mass.
- 1,029,729. Life-saving device. R. Trevisan, Baltimore, Md.
- 1,029,772. Overshoe. W. N. Steuart, Brookfield, Ohio.
- 1,029,813. Nasal douche. J. E. MacWilliam, assignor to F. A. MacWilliam—both of Hubbardston, Mass.
- 1,029,819. Hose coupling. J. Nylander, Muskegon, Mich.

- 1,029,867. Spring wheel. F. Homolya, Kenosha, Wis.
- 1,029,909. Spray nozzle. E. C. Brown, Rochester, N. Y.
- 1,030,032. Tire-repair device. F. A. Strong, Bridgeport, Conn., assignor to Weed Chain Tire Grip Co., New York.
- 1,030,113. Detachable tread. O. Moore, Visalia, Cal.
- 1,030,119. Sprayer. J. Overbeke, Cleveland, Ohio.
- 1,030,137. Brush. H. B. Smith, Bayside, N. Y.
- 1,030,151. Hose clamp. F. H. Baldwin, Ticonderoga, N. Y.
- 1,030,168. Horeshoe. A. M. H. de Bruycker, New York.
- 1,030,199. Garden-hose reel. E. D. Merikle, Passaic, N. J.
- 1,030,227. Resilient wheel. W. Black, Mendota, Ill.
- 1,030,233. Spring tire for vehicles. S. R. Crews, Tampa, Fla.
- 1,030,263. Tire. S. A. Matarazzo, Wilmerding, Pa.

Designs.

- 42,645. Rubber bathing cap. R. Parker, New York, assignor to Parker, Stearns & Co., Brooklyn, N. Y.
- 42,646. Rubber bathing cap. E. M. Parker, New York, assignor to Parker, Stearns & Co., Brooklyn, N. Y.

Trade Marks.

- 52,587. N. B. Arnold, New York. The word *Slikup*. For coating rubber articles.
- 59,831. Calmon Asbestos & Rubber Works of America, New York. The word *Eternite*. For packing material made of compressed asbestos.

ISSUED JUNE 25, 1912.

- 1,030,314. Spring wheel. A. R. McEntire, Folsom, Ga.
- 1,030,348. Protective covering for pneumatic tired wheels. L. J. Tetlow, West Springfield, Mass.
- 1,030,537. Vehicle-tire. L. Quintal, Cleveland, Ohio.
- 1,030,651. Curing of india rubber. R. Derry, Singapore, Straits Settlements.
- 1,030,716. Detachable wheel rim. J. J. Burney, Shreveport, La.

Trade Marks.

- 53,461. Continental Caoutchouc & Gutta Percha Co., Hanover, Germany. The word *Continental*. For use in vessels for navigating the air.
- 59,184. Ogden, Merrill & Greer, St. Paul, Minn. The words *Mammoth Amazon*. For fruit-jar rings.
- 62,348. Brett Mfg. Co., New York. The word *Pyxol*. For use with detergents.
- 62,634. Robins Conveying Belt Co., Passaic, N. J. The word *Robins*. For conveyor belts, etc.
- 63,407. Prescott & Co., Boston, Mass. The word *Whalebone*. For rubber hose.
- 63,408. Prescott & Co., Boston, Mass. The words *Storm King*. For rubber hose.
- 63,711. Hood Rubber Co., Boston, Mass. The words *Royal Oak* under picture of oak tree in circle.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1911.

*Denotes Patents for American Inventions.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JUNE 5, 1912.]

- 3,249. Buoyant couches. B. de Milkos, Satoraljauihely, Hungary.
- 3,294. Tire covers. J. N. Mollett, St. George's House, Eastcheap, London.
- 3,300. Fishing reels. F. and M. F. Baker, 28 Saint Paul's Square, Birmingham.
- 3,327. Rubberized measuring tapes. P. M. J. B. Feraud, 7 Rue du 29 Juillet, Paris.
- 3,342. Heels in layers of rubber and felt. A. Israelowitz, 20 Entegasse, and H. Wachtler, 27 Osterholzstrasse—both in Cassel, Germany.
- 3,359. Flesh brushes and soap dishes. H. Highwater, 24 Southwark street, London.
- 3,393. Bottle stoppers. E. G. Cheetham, 67 Eastgate, Louth, Lincolnshire.
- 3,440. Collapsible rubber ball for oil lamps. E. J. Godfrey, Severn Works, Gloucester.
- *3,452. Hard rubber telephone switches. F. R. McBerty, New Rochelle, N. Y., U. S. A.
- 3,481. Rubber tubes for talking machines. L. Lumiere, 262 Cours Gambetta, Lyons, France.
- 3,514. Rubber washers in electric switches. L. Bonnet, 17 Rue des Orfèvres, Vienne, France.
- 3,522. Moulding golf balls. W. Robertson, 16 Stirling Road, Leith, Scotland.
- 3,563. Tire covers. A. Margetts, 56 Moorgate street, London.
- 3,602. Recovering volatile proofing liquids. S. C. Early, 119 Rue d'Isly, Boulogne, France; and A. G. Christiansen, 12 Barry Road, East Dulwich; and Farrington Works and H. Pontifex & Sons, Shoe Lane—both in London.

- *3,649. Apparatus for measuring electricity. E. Weintraub, Lynn, Mass., U. S. A.
 3,677. Tire attachments to rims. W. T. Smith, 33 Hartington Road, Bolton.
 3,761. Rubber-wound golf balls. C. H. Gray, of India-Rubber, Gutter-Percha and Telegraph Works Co., Silvertown, Essex.
 3,789. Rubber washer in illuminated signs. H. Bey, Oxford street, London.
 *3,807. Elastic fabric for garment supporters. C. J. White, New Britain, Conn., U. S. A.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JUNE 12, 1912.]

- 3,898. Air tubes for tires. L. Brown and C. Macintosh & Co., Cambridge street, Manchester.
 3,996. Electric conductors. H. Evans and St. Helens Cable & Rubber Co., Arpley, Warrington, Lancashire.
 4,022. Golf balls. J. H. Roger, 11 South Exchange Place, Glasgow.
 4,088. Air tubes for tires. O. T. Banks, 49 Mortimer street, Cavendish Square, London.
 4,137. Tire jackets. B. Hüsing, Papenburg, Germany.
 4,143. Air cushion for pumps. C. Evans, Whitby House, Vale View, Longport, and E. Johnson, 93 Hall street, Burslem—both in Staffordshire.
 4,172. Improvements in cycle handles. C. P. Buch, 17 Sommervej, Charlottenlund, near Copenhagen.
 4,177. Respirators. J. Harger, Grange Hollies, Gateacre, Lancashire.
 4,199. Tread bands for tires. J. Briggs, Wyresdale, Hollings Hill, Esholt, Yorkshire.
 4,208. Tread bands for tires. A. Whiteway and C. Macintosh & Co., Cambridge street, Manchester.
 4,209. Improvements in tires. L. Brown and C. Macintosh & Co., Cambridge street, Manchester.
 4,216. Heel protectors. A. T. W. Lendrum, 4 Carrigdown, Mardyke, Cork.
 *4,291. Tread bands for tires. M. C. Overman, 391 West End avenue, New York, U. S. A.
 4,399. Protective covers for tires. H. C. L. E. Brionne, 34 Rue Coquebert, Reims, Marne, France.
 *4,470. Repairing tires. G. J. Martel, 5458 Michigan avenue, Chicago, Ill., U. S. A.
 4,471. Repairing tires. G. J. Martel, 5458 Michigan avenue, Chicago, Ill., U. S. A.
 4,474. Rubber support in hat boxes. E. Giese, 2 Freystrasse, Königsberg, Germany.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JUNE 19, 1912.]

- *4,587. Tread bands for tires. T. F. Baldwin, 106 West 31st street, New York, U. S. A.
 4,710. Tire jackets and covers. H. Panzetta, Carrara, Redhill, Surrey, and W. Truscott, 334 Euston Road, London.
 4,721. Block tires of compressed felt. H. Knock, Hirschberg-on-Saale, and Filzfabrik Adlershof, Akt. Ges. Adlershof, near Berlin—both in Germany.
 4,743. Devulcanizing waste rubber. C. Blair, 148 Wellington Road North, Heaton Norris, Stockport.
 4,820. Air tubes for tires. G. H. N. Howes, 30 Willis street, Norwich.
 4,892. Rings for pipe joints. F. J. W. Barnes, Floral Villa, Broad Gate, Beeston, Nottingham.
 4,946. Non-refillable bottles. W. Burdekin, 139 Boundary Road; J. Smart, 30 Hanover street; M. S. Brown, 69a Wilson street, and J. Ashcroft, Grove House, Raverhead—all in St. Helens.
 *5,020. Detachable rubber heels. C. H. Chapman, 52 Highland avenue, Winchester, Mass., U. S. A.
 *5,034. Pneumatic cushions in spring wheels. E. S. Shanklin, Oakland, Cal., U. S. A.
 5,036. Knitted fabric containing rubber for tires and balloon envelopes. E. C. R. Marks, 57 Lincoln's Inn Fields, London.
 5,053. Tire attachments to rims. H. Büssing, 40 Elmstrasse, Brunswick, Germany.
 5,058. Pneumatic cushion for vehicle wheels. A. Perrin, Rhode End, Paddock Wood, Kent.
 5,069. Detachable rim attachments to wheels. E. W. Thomas, 48 Chatsworth Road, Luton, Bedfordshire.
 5,094. Use of rubber in looms. J. P. Smith and J. T. Nuttall, Park Mill, Sedgwick street, Preston, Lancashire.
 5,109. Pneumatic cushion for vehicle wheels. I. Henson, Holly Bank, Quarndon Bank, Quarndon, Derbyshire.
 5,133. Hand shields for brushes. W. J. Alder, 54 Ashvale Road, Tooting, London.
 5,192. Rubber rollers for moulding dough. F. Hengler, 63 Oppumerstrasse, and F. Cronenmeyer, 24 Crefelderstrasse—both in Crefeld, Germany.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JUNE 26, 1912.]

- 5,258. Rubber macerating or sheeting machines. E. Stephenson, 4 The Broadway, Westminster.
 5,270. Pneumatic rings and cushions for wheels. R. V. Wagner, 34 Gray's Inn Road, Holborn, London.
 5,331. Tire attachments to rims. E. Owen, Back Madoc street, Llandudno, Carnarvonshire.
 5,349. Regenerating india-rubber. R. G. East, Manaton, Sherwood Road, Wimbledon, London.
 5,351. Rubber tires. R. G. East, Manaton, Sherwood Road, Wimbledon, London.
 5,381. Improvements in tires. A. E. Wale, 39 Alcester Road, Moseley, Birmingham.
 5,395. Artificial rubber from seaweed. J. S. Campbell, 57 South street, Isleworth, Middlesex.
 5,396. Artificial leather from seaweed. J. S. Campbell, 57 South street, Isleworth, Middlesex.

- 5,398. Protectors for rubber soles and heels. W. H. Bell, 66 Margaret street, Cavendish Square, London.
 5,494. Protectors for boots and tires. C. Michel and B. Fah, Grenchen, Solothurn, Switzerland.
 5,581. Improvements in golf balls. Dunlop Rubber Co., and J. V. Worthington, Manor Mills, Salford street, Aston, Birmingham.
 5,712. Plastic filler for rubber. T. D. Kelly, 9 Avenue Road, Southend.
 5,803. Tobacco pouches. A. E. Bishop, 20 Gordon avenue, St. Margarets, Twickenham.
 5,817. Improvements in vehicle wheels. M. Binnes, 95 Bellott street, Cheetham, and H. Bewick, 120 Herbert street, Hightown—both in Manchester.
 5,851. Pneumatic cushions for wheels. D. J. Lonek, Wildenschwert-Hilbetten, Bohemia.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

- 437,305 (November 8, 1911). J. C. Beeker. Interchangeable boot heel.
 437,320 (November 16). F. C. Leger. Rubber stamp for commercial uses.
 437,337 (November 20). R. Desavisse. Pneumatic safety wheel.
 437,338 (November 22). E. M. Beyon. System of attaching wheels and movable rims.
 437,386 (December 8). A. H. Shoemaker. Improvements in pneumatic tires.
 437,422 (February 16). J. Gautier. Improvements in pneumatic tires.
 437,463 (December 12). P. Orange. Improvements in manufacture of rods or tubes for mounting artificial flowers.
 437,547 (October 24). F. E. Matthews and E. H. Strange. Improvements in manufacture of synthetic rubber.
 437,562 (November 14). E. Dankmann. Rubber tires for automobiles and other vehicles.
 437,572 (November 17). Goussard. Improvements in rims and elastic tires for automobiles and other vehicles.
 437,683 (December 17). T. H. Quigg. Vehicle tires.
 437,691 (December 15). D. Ponchana. Protective leather cover for pneumatic tires.
 437,789 (December 18). E. A. H. de Poortere. Description of solid or hollow tire, to replace pneumatic tires for automobiles and other vehicles.
 437,847 (December 15). Kettler, Eilers & Hinnich. Device for repairing the air chambers of damaged pneumatic tires.
 437,887 (December 19). E. W. Baker. Elastic block rubber tires for automobiles and other vehicles.
 437,933 (December 20). A. C. Backus. Improvements in pneumatic tires.
 437,974 (December 21). E. Aimend. Rubber tire and device for attachment to wheel.
 438,683 (November 11). R. A. Moore. Antiskid device for automobiles and other vehicles.
 438,119 (December 5). J. W. and G. F. Burgess. Improvements in tires.
 438,197 (December 23). G. H. Price. New composition for automatically stopping perforations in pneumatic tires.
 438,204 (March 8). M. Guillot and H. Jambon. Elastic non-pneumatic tires for vehicle wheels.
 438,219 (December 26). H. Dagny and V. Henri. Wainscoted air chamber and process of manufacture.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Robet, Ingenieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

- 248,484 (August 30, 1910). Naamlooze Vennootschap Hollandsche Proteïne-Maatschappij, Amsterdam. Production of plastic masses for carbohydrates and alkali albuminates.
 248,516 (November 26, 1909). Alfred Whiteway and Charles Macintosh & Co., Manchester. Pneumatic tires with protective layer.
 248,926 (October 29, 1911). Mathilde Jankau, Pfannegg bei München. Bandage.
 249,120 (December 2, 1911). Christian Hamilton Gray, Silvertown, Essex, England. Production of golf balls with core soft or fluid at normal temperature.
 249,022 (May 14, 1911). Robinson Brothers, Ltd., West Birmingham, England. Spray mouthpiece.
 249,200 (August 25, 1911). Gustav Brockhaus, Unna, Westphalia. Feeding bottle stopper with ventilation.

THE KINGDOM OF BELGIUM.

PATENTS PUBLISHED.

- 243,238 (1912). Farbenfabriken vorm. F. Bayer & Co., Elberfeld, Germany. Process of production of rubber, its homologues and analogues.
 243,792 (1912). H. Fix, Metzingen, Germany. Process of preparation of substance replacing hard rubber.
 243,824 (1912). E. H. Grenet, avenue de Gambetta, Saintes, France. Rubber valve.
 243,826 (1912). Bourne Rubber Co., Ltd., London. Treatment of rubber in manufacturing certain articles.
 242,973 (1912). M. A. Nolan, 557 Ronde street, St. Paul, U. S. A. Improvements in rubber heels.
 243,182 (1912). Farbenfabriken vorm. F. Bayer & Co., Elberfeld, Germany. Process for production of pinacene.
 243,933 (1912). J. Blum-Sutton, Rue St. Boniface, 7, Brussels. Production of vulcanized rubber at ordinary temperature.
 244,174 (1912). Farbenfabriken vorm. F. Bayer & Co., Elberfeld, Germany. Process for preventing the glutination and resinification of substances resembling rubber.

Review of the Crude Rubber Market.

THE London figure of 4s. 9d. for fine Pará, recorded at the period of last report (as compared with 4s. 11d. a fortnight earlier), formed the keynote of values during the earlier part of July. On 11th an improvement was developed, which by degrees carried the price to 4s. 11½d. by 22d. The 5/8 mark was crossed on the 25th, when the price went to 5/0½; subsequently receding on the 26th (at time of writing) to 4 11/16.

A quiet but steady market characterized the earlier part of the month of July; among the principal objects of attention being the various statistical returns to June 30. In this connection special interest attached to the return of the crop of Pará rubber for the year ending June 30 last; the quantity having been 39,585 tons, as compared with 37,662 tons for the year 1910-11, and 39,240 tons for 1909-10. The steadiness in price recorded in spite of this record yield, has been attributed to the report that large quantities of rubber are held back at interior points, owing to the low water in the Amazon river. Another factor, contributing to firmness, has been the large reduction in the total visible supply on July 1, as compared with last year; the figures (including Caucho) being respectively 6,370 and 10,950 tons, the falling off being thus 4,580 tons. This difference practically represents a reduction of 3,730 tons in the English stock and of 520 tons in the Pará holdings of the syndicate; the latter standing on July 1, 1912, at 2,240 tons, as compared with 2,760 tons on July 1, 1911.

The disturbance of London business in plantation rubber through the dock strike, is shown by the falling off in quantities auctioned. At the 12 series of auctions, which took place during the first five months of this year, a total of 6,996 tons was offered, while the four series of June and July only included about 1,600 tons. The average reduction for June and July has thus equaled about 30 per cent.

At the London plantation rubber auction commencing July 2, the offerings amounted to 570 tons, nearly all sold at previous rates to 1d. decline. Demand was brisk, and it was considered that the trade could have taken double the quantity offered. The auction of the 16th included 625 tons, which were disposed of at practically unchanged prices. The local position in London will now be relieved by the cessation of the strike, which, after having lasted ten weeks, was called off on the 27th, according to cable reports.

Forward business has been transacted to a relatively satisfactory extent by plantation companies; sales for 1913 delivery having been made at 4s. 3½d. at end of June, and at 4s. 5d. at the middle of July.

At the Rotterdam auction of July 5, there were about 39 tons offered, chiefly of Congo, *Hevea*, and *Ficus* descriptions. Competition was good; the whole quantity being sold. Prices in general about reached valuations, but Congos showed a fall of about 6 per cent.

The Amsterdam auction of June 21 was relatively satisfactory to holders. Of 47½ tons, 44 tons were sold; at about valuations for *Hevea* and *Castilloa* descriptions, while *Ficus* fell off about 3 per cent.

Owing to the hesitancy of buyers, only about half of the 62 tons offered for sale at Havre on June 27, was sold; the average decline representing about 4 per cent.

Similar features marked the Antwerp sale of June 25, amounting to 471 tons, of which 328 tons were sold; the sales including 238 tons Congo and 83 tons plantation rubber. The average fall in value was about 3¼ per cent.; plantation alone showing a drop of only about 1 per cent. Cable advices regarding the Antwerp sale of July 24 report the prices realized as being 5

per cent. higher than valuations. The quantity offered was 280 tons.

The earlier part of July was marked by quiet steadiness in the New York market; buyers being still more or less reserved in their action; while the latter part of the month reflected the firmness and advancing tendency of the London market; the relative slowness of demand being offset by the disinclination to force sales.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and July—the current date.

PARÁ.	Aug. 1, '11.	July 1, '12.	July 30, '12.
Islands, fine, new.....	104@105	100@101	107@108
Islands, fine, old.....	@107		109@110
Upriver, fine, new.....	114@115	110@111	117@118
Upriver, fine, old.....	118@119	115@116	122@123
Islands, coarse, new.....	61@ 62	54@ 55	56@ 57
Islands, coarse, old.....			
Upriver, coarse, new.....	95@ 96	84@ 85	90@ 91
Upriver, coarse, old.....			
Cametá.....	67@ 68	63@ 64	65@ 66
Caucho (Peruvian) ball.....	96@ 97	82@ 83	88@ 89
Caucho (Peruvian) sheet.....			76@ 77

PLANTATION PARÁ.

Fine smoked sheet.....	133@134	118@119	120@121
Fine pale crepe.....	132@133	117@118	121@122
Fine sheets and biscuits.....	131@132	113@114	117@118

CENTRALS.

Esmeralda, sausage.....	84@ 85	82@ 83	83@ 84
Guayaquil, strip.....			
Nicaragua, scrap.....	84@ 85	80@ 81	81@ 82
Panama.....			
Mexican, plantation, sheet.....		90@ 95	
Mexican, scrap.....	83@ 84	80@ 81	81@ 82
Mexican, slab.....			
Mangabeira, sheet.....			
Guayule.....	43@ 44	55@ 56	57@...
Balata, sheet.....	84@ 85	85@ 86	
Balata, block.....	63@ 65	53@ 54	

AFRICAN.

Lopori, ball, prime.....	108@109		108@109
Lopori, strip, prime.....			
Aruwimi.....	103@104		103@104
Upper Congo, ball, red.....	105@106		105@106
Ikelemba.....			
Sierra Leone, 1st quality....	95@ 96	94@ 95	95@ 96
Massai, red.....	98@ 99	95@ 96	98@ 99
Soudan, Niggers.....			
Cameroon, ball.....		65@ 66	
Benguela.....			
Madagascar, pinky.....		85@ 86	
Accra, flake.....	27@...	27@ 28	27@...

EAST INDIAN.

Assam.....	81@ 82		
Pontianak.....	6@ 6½	57s 6	6@ 6½
Borneo.....			

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine.....	4\$625	Upriver, fine.....	
Islands, coarse.....	2\$250	Upriver, coarse.....	
		Exchange.....	16 7/32d.

Latest Manáos advices:

Upriver, fine.....	6\$150	Exchange.....	16 7/32d.
Upriver, coarse.....	4\$150		

Amsterdam.

JOOSTEN & JANSSEN report [June 21]:

Today's sale was satisfactory, although results were somewhat irregular, in consequence of the weakness reported from London. Of the 47½ tons offered, 44 tons were sold. *Hevea* and *Castilloa* descriptions realized about the valuations, while *Ficus* qualities dropped 3 per cent.

Rotterdam.

HAVELAAR & DE VRIES report [July 8]:

Offerings in sale of 5th included 17 1/2 tons Congo, 11 1/2 tons Hevea and 9 tons Ficus, which were practically all sold. Competition was good. Prices, with exception of Hevea and Castilloa, were nearly all below valuations. Congos showed a fall of 6 per cent, and Ficus 2 per cent.

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.			Total.		
	Fine and Medium.	Coarse.		1912.	1911.	1910.
Stocks, May 31.....tons	163	18 =	181	351	106	
Arrivals, June	794	555 =	1,349	1,501	401	
Aggregating	957	573 =	1,530	1,852	507	
Deliveries, June	804	550 =	1,354	1,479	346	
Stocks, June 30	153	23 =	176	373	161	
	Pará.			England.		
	1912.	1911.	1910.	1912.	1911.	1910.
Stocks, May 31....tons	2,995	4,205	675	730	1,925	1,550
Arrivals June	1,950	1,090	945	443	179	662
Aggregating	4,945	5,295	1,620	1,173	2,104	2,212
Deliveries, June	2,260	1,510	1,320	483	329	752
Stocks, June 30	2,685	3,785	300	690	1,775	1,460
World's visible supply, June 30.....tons	4,680	6,564	2,665			
Pará receipts, July 1 to June 30.....	32,330	30,290	31,515			
Pará receipts of caucho, same dates.....	7,390	7,330	7,740			
Afloat from Pará to United States, June 30	279	226	199			
Afloat from Pará to Europe, June 30.....	850	405	545			

Rubber Stock at Para.

Stock for January 31 showed an increase caused by heavier arrivals, while that of February 29 shows a slight decrease. The stock of March 31 displayed a further reduction, while that of April 30 was about the same as a month earlier. On May 31 the stock had again increased, but had receded by June 30.

January 31, 1911.....tons	2,085	October 31, 1911.....tons	3,320
February 28	3,787	November 30	3,050
March 31	4,214	December 31	2,675
April 30	5,104	January 31, 1912.....	3,370
May 31	5,350	February 29	3,240
June 30	4,545	March 31	2,730
July 31	3,884	April 30	2,770
August 31	3,450	May 31	2,995
September 30	3,102	June 30	2,685

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During July the demand for commercial paper has continued very good, both from city and out-of-town banks, but principally out-to-town, the best rubber names ruling at 4@4 1/2 per cent., and those not so well known 5 1/2@5 3/4 per cent., rates the latter part of the month being rather higher than the first part."

NEW YORK PRICES FOR JUNE (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine	\$1.08@1.12	\$0.95@1.03	\$2.23@2.45
Upriver, coarse .....	.86@.91	.81@.85	1.50@1.63
Islands, fine	1.01@1.06	.91@.98	2.13@2.30
Islands, coarse .....	.55@.59	.58@.63	.93@1.05
Cameta .....	.63@.65	.67@.71	1.10@1.25

African Rubbers.**NEW YORK STOCKS (IN TONS).**

June 1, 1911	90	January 1, 1912	58
July 1	90	February 1	150
August 1	90	March 1	90
September 1	112	April 1	80
October 1	67	May 1	62
November 1	45	June 1	94
December 1	60	July 1	62

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

July 7, 1911	4/2 1/2	January 19, 1912	4/5 1/2
July 14	4/5 1/2	January 26	4/8
July 21	4/7	February 2	4/7
July 28	4/8	February 9	4/6 1/2
August 4	4/7 1/2	February 16	4/6 3/4
August 11	4/7 1/2	February 23	4/7 1/2
August 18	4/7 1/2	March 1	4/7 1/2
August 25	4/10 1/2	March 8	4/9
September 1	4/8 1/2	March 15	4/10 1/2
September 8	4/9	March 22	5/1 1/2
September 15	5/-	March 29	4/11 1/2
September 22	4/10 1/2	April 5	4/11
September 29	4/8	April 12	4/11
October 6	4/7	April 19	4/10 1/4
October 13	4/5	April 25	4/9
October 20	4/6 1/2	May 3	4/7 1/2
October 27	4/4	May 10	4/7 1/2
November 3	4/3	May 17	4/7 1/2
November 10	4/4 1/2	May 24	4/7 1/2
November 17	4/3	May 31	4/7 1/2
November 24	4/3 1/2	June 7	4/8 1/2
December 1	4/4 1/2	June 14	4/10
December 8	4/5 1/2	June 21	4/9 1/2
December 15	4/4 1/2	June 28	4/7 1/2
December 22	4/4	July 5	4/9
December 29	4/3 1/2	July 12	4/10
January 5, 1912	4/4 1/2	July 19	4/10
January 12	4/5 1/2	July 26	4/11 1/4

Liverpool.

WILLIAM WRIGHT & Co. report [July 1]:

Fine Pará.—Owing to labor troubles in London, which naturally affected trade deliveries, combined with some shortage for June delivery, prices during the early part of the month for spot and near delivery advanced from 4s. 8d. [£1.14] to 4s. 10 1/2d. [£1.19], but have since reacted to 4s. 9d. [£1.16] sellers, closing with sellers Upriver, Fine, 4s. 9d. [£1.19]; Island, 4s. 2 1/2d. [£1.02]. Naturally forward positions benefited by spot values, although a fairly liberal discount was accepted for distant deliveries. There must still be a considerable accumulation of supplies of plantation grades in London, and once the strike is over we look for a reaction in prices, but we think a drop in values of 2d. to 3d. per pound would mean a resumption of active trade demand, and we would counsel manufacturers to take, at any rate, some advantage of any such decline.

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

JULY 5.—By the steamer *Pancras* from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	TOTAL.
Arnold & Zeiss.....	83,000	19,000	157,000	13,700=	272,700
Meyer & Brown.....	59,300	5,200	38,600	40,700=	143,800
Henderson & Korn.....	25,200	8,800	31,000	28,200=	93,200
New York Commercial Co..	16,900	5,000	40,600	30,400=	92,900
General Rubber Co.....	35,200	.....	3,900	2,000=	41,100
De Lagotellerie & Co.....	12,100	1,800	13,800	.....=	27,700
Robinson & Co.....	12,100	.....	7,200	.....=	19,300
Total	243,800	39,800	292,100	115,000=	690,700

JULY 18.—By the steamer *Basil* from Manáos and Pará:

Arnold & Zeiss.....	347,300	74,500	188,400	50,200=	660,400
Meyer & Brown.....	57,900	9,600	18,000	43,900=	129,400
New York Commercial Co..	54,200	16,500	22,200	1,700=	94,600
Henderson & Korn.....	38,000	14,100	15,300	1,000=	68,400
General Rubber Co.....	28,500	200	26,800	.....=	55,500
Robinson & Co.....	12,400	7,400	11,200	12,900=	43,900
De Lagotellerie & Co.....	12,100	3,200	13,900	.....=	29,200
Crossman & Sielcken.....	.....	.....	3,300	500=	3,800
Hagemeyer & Brunn.....	.....	.....	16,800	.....=	16,800
Total	550,400	125,500	315,900	110,200=	1,102,000

JULY 4.—By the steamer *Christopher* from Manáos and Pará:

Arnold & Zeiss.....	83,100	21,900	56,800	16,900=	178,700
New York Commercial Co..	51,700	20,100	22,400	.....=	94,200
Meyer & Brown.....	15,100	2,200	12,700	3,500=	33,500
De Lagotellerie & Co.....	13,900	700	15,800	.....=	30,400
General Rubber Co.....	.....	.....	29,700	.....=	29,700
Henderson & Korn.....	4,600	.....	5,300	.....=	9,900
G. Amsinck & Co.....	4,000	.....	3,300	500=	7,800
Robinson & Co.....	1,400	300	5,300	.....=	7,000
Cerqueira Pinta	4,700	.....	.....	.....=	4,700
Total	178,500	45,200	151,300	20,900=	395,900

PARA RUBBER VIA EUROPE.

		Pounds.
JUNE 26.—By the <i>Coronia</i> —Hamburg:		
Rubber Trading Co. (Fine).....	7,000	
JUNE 26.—By the <i>Cypripedium</i> —Bahia:		
General Export Co. (Fine).....	3,000	
General Export Co. (Coarse)....	15,000	18,000
JUNE 1.—By the <i>Perous</i> —Hamburg:		
Ed. Maurer (Fine).....	34,000	
JUNE 2.—By the <i>Grenada</i> —Bolivar:		
Yglesias, Lobo & Co. (Fine).....	10,000	
Yglesias, Lobo & Co. (Coarse)...	15,000	25,000
JUNE 8.—By the <i>Cedric</i> —Liverpool:		
Robinson & Co. (Fine).....	5,500	
General Rubber Co. (Coarse)....	13,500	19,000
JUNE 9.—By the <i>Amerika</i> —Hamburg:		
Ed. Maurer (Fine).....	15,000	
JUNE 9.—By the <i>Colon</i> —Colon:		
W. R. Grace & Co. (Fine).....	10,000	
W. R. Grace & Co. (Cauchó)...	15,000	25,000
JUNE 8.—By the <i>Bermuda</i> —Hamburg:		
New York Commercial Co. (Fine).....	8,000	
JUNE 9.—By the <i>Saramaca</i> —Bolivar:		
Yglesias, Lobo & Co. (Fine)....	6,500	
Yglesias, Lobo & Co. (Coarse)...	1,500	
American Trading Co. (Fine)....	1,000	
American Trading Co. (Coarse)...	1,000	10,000
JUNE 10.—By the <i>President Lincoln</i> —Hamburg:		
Ed. Maurer (Fine).....	25,000	
JUNE 12.—By the <i>Lusitania</i> —Liverpool:		
Arnold & Zeiss (Coarse).....	22,500	
JUNE 15.—By the <i>Mayaro</i> —Bolivar:		
General Export Co. (Fine).....	17,500	
General Export Co. (Coarse)....	9,000	26,500
JUNE 15.—By the <i>Celtic</i> —Liverpool:		
Robinson & Co. (Fine).....	28,000	
JUNE 16.—By the <i>Cleveland</i> —Hamburg:		
Wallace L. Gough Co. (Fine).....	11,000	
JUNE 16.—By the <i>Advance</i> —Mollendo:		
New York Commercial Co. (Fine).....	4,000	
JUNE 19.—By the <i>Mauretania</i> —Liverpool:		
N. Y. Commercial Co. (Fine)....	135,000	
N. Y. Commercial Co. (Coarse)...	34,000	
Robinson & Co. (Coarse).....	7,000	
Arnold & Zeiss (Fine).....	11,000	187,000
JUNE 19.—By the <i>Adriatic</i> —Liverpool:		
Arnold & Zeiss (Cauchó).....	90,000	
JUNE 22.—By the <i>Panama</i> —Mollendo:		
W. R. Grace & Co. (Coarse)....	1,500	
W. R. Grace & Co. (Fine).....	6,000	7,500
JUNE 22.—By the <i>Kaiserin Auguste Victoria</i> —Hamburg:		
N. Y. Commercial Co. (Fine)....	15,000	
Raw Products Co. (Fine).....	2,000	17,000

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

		Pounds.
JUNE 25.—By the <i>Joachim</i> —Colon:		
G. Amsinck & Co.	5,500	
J. Sambrada & Co.	1,000	
Gillespie Bros. & Co.	1,000	
I. Brandon & Bros.	1,000	8,500
JUNE 27.—By the <i>Thespis</i> —Bahia:		
J. H. Rossbach & Bros.	69,000	
JUNE 27.—By the <i>Panama</i> —Colon:		
G. Amsinck & Co.	7,000	
W. R. Grace & Co.	4,000	
I. Brandon & Bros.	1,500	
George A. Alden & Co.	1,500	
M. J. Baconté	1,000	15,000
JUNE 1.—By the <i>Matanzas</i> —Tampico:		
Ed. Maurer	*235,000	
New York Commercial Co.	*110,000	
H. Marquardt & Co.	*10,000	
In transit	*36,000	*391,000
JUNE 1.—By the <i>Esperanza</i> —Frontera:		
Meyer & Brown	5,000	
W. P. Bainbright Co.	3,000	
E. Steiger & Co.	2,000	
German-American Coffee Co.	1,000	

H. Marquardt & Co.	1,000	
J. W. Wilson & Co.	1,000	
Heiman Kluge	1,000	
Silva, Busenius & Co.	1,000	
For Glasgow	10,000	25,000
JUNE 3.—By the <i>Magdalena</i> —Colombia:		
Maitland, Coppell & Co.	9,000	
G. Amsinck & Co.	7,000	
A. M. Capen's Sons.	4,000	
I. Sambrada & Co.	1,000	
I. Brandon & Bros.	1,000	
For London	6,000	28,000
JUNE 3.—By the <i>Verdi</i> —Bahia:		
A. Hirsch & Co.	20,000	
A. D. Hitch & Co.	11,000	31,000
JUNE 5.—By the <i>Allianca</i> —Colon:		
G. Amsinck & Co.	6,000	
Piza Nephews Co.	2,000	
Pablo Calvert & Co.	1,500	
Wessels, Kulenkampff & Co.	1,500	
A. Rosenthal & Sons.	1,500	
Lauman & Kemp.	1,500	
J. H. Thompson.	1,000	
R. G. Barthold.	1,000	16,000
JUNE 6.—By the <i>Morro Castle</i> —Frontera:		
E. Steiger & Co.	4,500	
H. Marquardt & Co.	4,000	
American Trading Co.	1,500	
Willard Hawes & Co.	1,500	
Harburger & Stack.	1,000	
For London	5,500	18,000
JUNE 8.—By the <i>Santiago</i> —Tampico:		
New York Commercial Co.	*67,000	
Ed. Maurer	*45,000	
Arnold & Zeiss.	*25,000	
In transit	*9,000	*146,000
JUNE 9.—By the <i>Colon</i> —Colon:		
G. Amsinck & Co.	4,500	
A. Rosenthal & Sons.	3,500	
Wessels, Kulenkampff & Co.	3,000	
Maitland, Coppell & Co.	2,000	
J. Sambrada & Co.	1,500	14,500
JUNE 10.—By the <i>Prinz August Wilhelm</i> —Colon:		
G. Amsinck & Co.	3,000	
I. Brandon & Bros.	1,500	
Mecke & Co.	1,500	
Graham, Hinkley & Co.	1,500	
Suzarte & Whitney.	1,000	8,500
JUNE 11.—By the <i>Matoppe</i> —Colombia:		
B. Williamson & Co.	7,000	
Roldau & Van Sickle.	2,000	9,000
JUNE 12.—By the <i>Monterey</i> —Frontera:		
Lawrence Johnson & Co.	4,500	
E. Steiger & Co.	2,000	
Harburger & Stack.	1,500	
For Havre	5,000	13,000
JUNE 13.—By the <i>Comus</i> —New Orleans:		
Manhattan Rubber Mfg. Co.	5,000	
Robinson & Co.	3,000	
Eggers & Heinlein.	2,500	10,500
JUNE 13.—By the <i>El Oriente</i> —Galveston:		
Continental-Mexican Rubber Co.	*45,000	
Charles T. Wilson.	*6,000	*51,000
JUNE 16.—By the <i>Cleveland</i> —Hamburg:		
Ed. Maurer	*7,000	
JUNE 19.—By the <i>El Cid</i> —Galveston:		
Continental-Mexican Rubber Co.	*155,000	
JUNE 20.—By the <i>Mexico</i> —Vera Cruz:		
H. Marquardt & Co.	3,500	
Lawrence Johnson & Co.	2,500	
Maitland, Coppell & Co.	2,000	
Graham, Hinkley & Co.	1,000	9,000
JUNE 22.—By the <i>Kaiserin Auguste Victoria</i> —Hamburg:		
New York Commercial Co.	*30,000	
Ed. Maurer	*4,500	*34,500
JUNE 22.—By the <i>Panama</i> —Colon:		
G. Amsinck & Co.	7,000	
I. Brandon & Bros.	3,500	
Mecke & Co.	2,000	
Gillespie Bros. & Co.	1,500	
Wessels, Kulenkampff & Co.	2,000	
Suzarte & Whitney.	1,000	17,000
AFRICAN.		
		Pounds.
JUNE 26.—By the <i>Cincinnati</i> —Hamburg:		
Meyer & Brown	36,500	
General Rubber Co.	17,000	
Raw Products Co.	2,500	56,000
JUNE 27.—By the <i>California</i> —Havre:		
Meyer & Brown	17,000	

JUNE 27.—By the <i>Coronia</i> —Liverpool:		
Wallace L. Gough Co.	7,000	
James T. Johnstone.	7,000	
George A. Alden & Co.	1,000	15,000
JUNE 27.—By the <i>Zeeland</i> —Antwerp:		
Henderson & Korn.	5,500	
JUNE 29.—By the <i>Baltic</i> —Liverpool:		
Meyer & Brown.	11,000	
J. T. Johnstone.	2,000	
General Rubber Co.	2,000	15,000
JUNE 1.—By the <i>Philadelphia</i> —London:		
George A. Alden & Co.	33,500	
JUNE 5.—By the <i>Madonna</i> —Lisbon:		
Ed. Maurer	22,500	
Wallace L. Gough Co.	11,000	33,500
JUNE 8.—By the <i>Amerika</i> —Hamburg:		
Meyer & Brown.	27,000	
Arnold & Zeiss.	29,000	
Ed. Maurer	11,000	
General Rubber Co.	3,500	
A. W. Brunn	2,000	72,500
JUNE 8.—By the <i>Lapland</i> —Antwerp:		
Arnold & Zeiss.	45,000	
Wallace L. Gough Co.	9,000	
Muller, Schall & Co.	7,000	
Rubber Trading Co.	9,000	70,000
JUNE 8.—By the <i>Bermuda</i> —Hamburg:		
Ed. Maurer	22,500	
Rubber Trading Co.	17,000	
Henderson & Korn.	10,000	
Meyer & Brown	9,000	
George A. Alden & Co.	6,000	
Robert Badenhop	3,500	68,000
JUNE 11.—By the <i>Majestic</i> —London:		
George A. Alden & Co.	15,000	
JUNE 10.—By the <i>President Lincoln</i> —Hamburg:		
Meyer & Brown.	45,000	
General Rubber Co.	13,500	
Ed. Maurer	8,000	
Arnold & Zeiss.	6,000	
Henderson & Korn.	3,500	76,000
JUNE 13.—By the <i>Celtic</i> —Liverpool:		
Arnold & Zeiss.	11,500	
George A. Alden & Co.	15,500	
James T. Johnstone.	9,000	
Charles T. Wilson.	2,000	38,000
JUNE 15.—By the <i>New York</i> —London:		
Arnold & Zeiss.	18,000	
Rubber Trading Co.	13,500	
Charles T. Wilson.	2,500	34,000
JUNE 16.—By the <i>Cleveland</i> —Hamburg:		
Ed. Maurer	30,000	
Meyer & Brown	18,000	
George A. Alden & Co.	10,000	
Robert Badenhop	8,000	
Henderson & Korn.	6,000	72,000
JUNE 19.—By the <i>Adriatic</i> —Liverpool:		
Arnold & Zeiss.	56,000	
Rubber Trading Co.	2,500	58,500
JUNE 22.—By the <i>St. Paul</i> —London:		
James T. Johnstone.	10,000	
George A. Alden & Co.	8,500	
Charles T. Wilson.	5,500	24,000
JUNE 22.—By the <i>Kaiserin Auguste Victoria</i> —Hamburg:		
Ed. Maurer	34,000	
Meyer & Brown	34,000	
General Rubber Co.	25,000	
Arnold & Zeiss.	20,000	
Wallace L. Gough Co.	13,500	126,500
JUNE 24.—By the <i>Zeeland</i> —Antwerp:		
Meyer & Brown	4,500	
Henderson & Korn.	5,500	10,000
EAST INDIAN.		
(*Denotes plantation rubber.)		Pounds.
JUNE 27.—By the <i>Caronia</i> —Liverpool:		
W. H. Stiles & Co.	*9,000	
Ed. Maurer	*9,000	
Charles T. Wilson.	*13,500	
General Rubber Co.	*7,000	*38,500
JUNE 27.—By the <i>Zeeland</i> —Antwerp:		
Meyer & Brown	*11,500	
JUNE 1.—By the <i>Philadelphia</i> —London:		
Ed. Maurer	*40,000	
Arnold & Zeiss.	*15,000	
Charles T. Wilson.	*9,000	
New York Commercial Co.	*7,000	
Henderson & Korn.	*8,000	
Muller, Schall & Co.	*7,000	*86,000

JULY 3.—By the <i>Chrysops</i> —London:			
New York Commercial Co.	\$4,000		
Arnold & Zeiss	34,000		
In transit	75,000	78,000	
JULY 8.—By the <i>Cebu</i> —Liverpool:			
Ed. Maurer	115,000		
JULY 8.—By the <i>St. Louis</i> —London:			
New York Commercial Co.	105,000		
Arnold & Zeiss	10,000		
James T. Johnstone	11,000	150,000	
JULY 8.—By the <i>Lafayette</i> —Antwerp:			
Meyer & Brown	75,000		
New York Commercial Co.	10,000		
Rubber Trading Co.	10,000		
Wallace L. Gough & Co.	6,000	102,000	
JULY 10.—By the <i>Crostafels</i> —Colombo:			
Meyer & Brown	60,000		
New York Commercial Co.	13,500		
Ed. Maurer	11,000		
Muller-Schall & Co.	3,000	87,500	
JULY 10.—By the <i>Amsterdam</i> —Rotterdam:			
Meyer & Brown	15,000		
Rubber Trading Co.	7,000		
Ed. Maurer	5,000		
Otto Isenstein & Co.	7,000	34,000	
JULY 11.—By the <i>Majestic</i> —London:			
Charles T. Wilson	29,000		
Ed. Maurer	13,500		
In transit	35,000	77,500	
JULY 16.—By the <i>Matoppo</i> —Singapore:			
Ed. Maurer	34,000		
New York Commercial Co.	15,000		
L. Littlejohn & Co.	11,500		
A. W. Brunn	5,500		
Wallace L. Gough Co.	5,000		
L. Littlejohn & Co.	25,000		
Haebler & Co.	7,000		
Arnold & Zeiss	11,500	114,500	
JULY 16.—By the <i>Kronland</i> —Antwerp:			
Meyer & Brown	55,000		
JULY 17.—By the <i>Ocean</i> —London:			
New York Commercial Co.	155,000		
Arnold & Zeiss	45,000		
James T. Johnstone	34,000		
Charles T. Wilson	15,000		
Meyer & Brown	11,000		
In transit	45,000		
Arnold & Zeiss	30,000	335,000	

JULY 19.—By the <i>Mauretania</i> —Liverpool:			
General Rubber Co.	22,500		
JULY 21.—By the <i>Bukenfels</i> —Colombo:			
Meyer & Brown	70,000		
H. W. Peabody & Co.	9,000		
Robert Badenhop	5,000		
New York Commercial Co.	3,500		
General Rubber Co.	30,000	117,500	
JULY 22.—By the <i>St. Paul</i> —London:			
New York Commercial Co.	45,000		
Meyer & Brown	35,000		
Arnold & Zeiss	45,000		
Charles T. Wilson	5,000	130,000	
JULY 24.—By the <i>Zeeland</i> —Antwerp:			
Arnold & Zeiss	65,000		
Meyer & Brown	7,000		
Henderson & Korn	5,000	77,000	
GUTTA-JELUTONG.			
JULY 16.—By the <i>Matoppo</i> —Singapore:			
L. Littlejohn & Co.	800,000		
George A. Alden & Co.	650,000		
Wallace L. Gough Co.	350,000		
Haebler & Co.	400,000		
W. R. Russell & Co.	55,000		
Arnold & Zeiss	55,000	2,310,000	
GUTTA-PERCHA.			
JUNE 26.—By the <i>Cincinnati</i> —Hamburg:			
Robert Soltau & Co.	8,000		
JULY 16.—By the <i>Matoppo</i> —Singapore:			
L. Littlejohn & Co.	45,000		
Arnold & Zeiss	5,000	50,000	
JULY 22.—By the <i>Kaiserin Auguste Victoria</i> —Hamburg:			
Robert Soltau & Co.	8,000		
BALATA.			
JULY 17.—By the <i>Marowijne</i> —Demerara:			
Middleton & Co.	5,500		
George A. Alden & Co.	1,500		
Gillespie Bros. & Co.	1,500	8,500	

BOSTON ARRIVALS.

		Pounds.
MAY 1. By the <i>Waldsee</i> —Hamburg:		
George A. Alden & Co. (African)	4,400	
MAY 1. By the <i>Imperial</i> —London:		
Wallace L. Gough Co. (African)	6,700	
MAY 3.—By the <i>Kananga</i> —Singapore:		
State Rubber Co. (East Indian)	17,500	
L. Littlejohn & Co. (Jelutong)	285,000	
State Rubber Co. (Jelutong)	50,000	352,500
MAY 21.—By the <i>Teos</i> —Singapore:		
State Rubber Co. (East Indian)	13,500	
L. Littlejohn & Co. (Jelutong)	620,000	
State Rubber Co. (Jelutong)	85,000	718,500
MAY 24.—By the <i>Indrasamha</i> —Singapore:		
Wallace L. Gough Co. (Jelutong)	110,000	
JUNE 1.—By the <i>Anglim</i> —London:		
Wallace L. Gough Co. (African)	4,500	
JUNE 5.—By the <i>Kaloma</i> —Singapore:		
State Rubber Co. (East Indian)	6,500	
L. Littlejohn & Co. (Jelutong)	625,000	
George A. Alden & Co. (Jelutong)	56,000	
Wallace L. Gough Co. (Jelutong)	34,000	721,500
JUNE 8.—By the <i>Burmese Prince</i> —Singapore:		
State Rubber Co. (East Indian)	30,000	
State Rubber Co. (Gutta-Peicha)	22,500	
L. Littlejohn & Co. (Jelutong)	1,170,000	1,222,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—JUNE, 1912.

Imports:	Pounds.	Value.
India-rubber	6,711,234	\$5,312,942
Balata	8,636	5,320
Guayule	792,215	359,216
Gutta-percha	20,186	16,761
Gutta-jelutong (Pontianak)	1,436,535	63,783
Total	8,968,806	\$5,758,023
Exports:		
India-rubber	53,551	\$46,797
Balata		
Guayule		
Gutta-percha		
Reclaimed rubber	50,077	9,290
Rubber scrap, imported	1,710,836	\$136,935
Rubber scrap, exported	389,417	61,092

EXPORTS OF INDIA-RUBBER FROM PARA FOR THE FIRST SIX MONTHS OF 1912 (IN KILOGRAMS).

EXPORTERS.	NEW YORK.					EUROPE.					Total Exported.	Stock in Para on June 30, 1912.	GRAND TOTAL.
	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.			
Zarges, Berringer & Co.—													
Para	786,229	262,762	1,371,088	582,972	3,003,051	1,412,143	128,620	182,419	461,943	2,177,125	5,180,176	160,000	5,340,176
Ad. H. Alden, Ltd.	311,335	69,598	437,188	281,159	1,099,280	772,023	100,188	325,066	157,999	1,355,276	2,454,556	39,000	2,493,556
General Rubber Co. of Brazil	578,163	79,492	397,849	207,446	1,262,950	167,218	23,131	82,979	141,032	414,360	1,677,310	32,000	1,709,310
Suarez Hermanos & Co., Ltd.						672,346	17,362	75,774	240,986	1,006,468	1,006,468	77,000	1,083,468
R. O. Ahlers & Co. (*)	191,913	19,838	91,604	135,502	438,857	206,936	3,974	53,312	82,139	346,361	785,218	65,000	850,218
De Lagotellerie & Co.	66,300	17,510	150,480		234,290	79,050	686	30,020	6,930	116,686	350,976	22,000	372,976
M. Ulmann & Co.						17,009	1,064	18,527	171,920	208,520	208,520		208,520
Pires Teixeira & Co.	75,136	6,832	59,100	16,616	157,684	16,150	1,020	15,840		33,010	190,694		190,694
Nunes Sobrinho & Co.	12,580	3,060	22,440	4,240	42,320	38,360	3,104	6,576	734	48,774	91,094		91,094
Sundry exporters	26,405	1,757	33,765	6,052	67,979	3,508	203	10,964	1,260	15,935	83,914		83,914
	2,048,061	460,849	2,563,514	1,233,987	6,306,411	3,384,743	271,352	801,477	1,264,943	5,722,515	12,028,926	395,000	12,423,926
Itacoatiara, direct						31,240	4,531	21,369	9,505	66,645	66,645		66,645
Manaos, direct	2,328,389	602,180	991,687	797,425	4,719,681	2,444,496	412,573	514,629	1,361,710	4,733,408	9,453,089		9,453,089
Iquitos, direct	32,782	1,103	7,369	39,811	81,065	390,647	56,144	141,778	679,965	1,268,534	1,349,599		1,349,599
Stock in first hands in Para												412,000	412,000
Stock held by Syndicate J. Marques												2,240,000	2,240,000
	4,409,232	1,064,132	3,562,570	2,071,223	11,107,157	6,251,126	744,600	1,479,253	3,316,123	11,791,102	22,898,259	3,047,000	25,945,259

(*) Included in these figures are about 460 tons Bolivian Rubber and Cauch in transit; the balance is own export.

MANAOS EXPORTS OF INDIA-RUBBER FOR FIRST SIX MONTHS OF 1912 (IN KILOGRAMS).

EXPORTERS.	NEW YORK.					EUROPE.					GRAND TOTAL Kilos.	Stock. Tons.	GRAND TOTAL Kilos.
	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.			
Zarges, Ohliger & Co.	924,351	173,766	368,855	263,719	1,730,691	1,339,974	120,045	115,528	610,657	2,186,204	3,916,895	112	4,028,895
Adelbert H. Alden, Ltd.	733,800	237,872	293,356	331,352	1,596,380	405,096	133,576	136,168	230,708	905,548	2,501,928	5	2,506,928
General Rubber Co. of Brazil	640,452	181,185	255,580	109,851	1,187,068	199,426	68,967	53,994	332,701	655,088	1,842,156	11	1,853,156
Ahlers & Co.	192,140	39,393	86,782	71,121	389,436	283,568	38,612	83,243	178,695	584,118	973,554		973,554
De Lagotellerie & Co.						120,712	36,676	60,219	65,711	283,318	283,318	5	288,318
J. G. Araujo			7,200	7,200	14,400	191	2,625	43,575	150	46,581	60,941		60,941
W. Peters & Co.				37,542	37,542	2,153	939	12,317	4,365	19,774	57,346		57,346
Semper & Co.						42,944	4,303	7,942		55,189	55,189		55,189
Various						7,276	3,207	10,575	5,239	26,297	26,297		26,297
	2,490,743	632,216	1,011,773	820,815	4,955,547	2,401,340	408,950	523,561	1,428,226	4,762,077	9,717,624	133	9,850,624
Iquitos, direct	32,782	1,103	7,369	39,811	81,065	390,647	56,144	141,778	679,965	1,268,534	1,349,599		1,349,599
Total	2,523,525	633,319	1,019,142	860,626	5,036,612	2,791,987	465,094	665,339	2,108,191	6,030,611	11,067,223	133	11,200,223



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Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are practically unchanged.

	August 1.
Old rubber boots and shoes—domestic	9.05@ 9 1/8
Old rubber boots and shoes—foreign	9 @ 9 1/8
Pneumatic bicycle tires	4 1/2 @ 4 3/4
Automobile tires	9 1/8 @ 9 1/4
Solid rubber wagon and carriage tires	9 1/4 @ 9 3/4
White trimmed rubber	11 @ 11 1/2
Heavy black rubber	4 3/4 @ 5
Air brake hose	5 1/8 @ 5 1/4
Garden hose	1 1/2 @ 1 5/8
Fire and large hose	2 @ 2 1/8
Matting	5/8 @ 3/4

Antwerp.

RUBBER STATISTICS FOR JUNE.

DETAILS.	1912.	1911.	1910.	1909.	1908.
Stocks, May 31...kilos	444,437	614,010	543,863	689,238	771,577
Arrivals in June—					
Congo sorts	174,315	382,972	356,288	273,079	397,745
Other sorts	10,529	11,860	29,384	120,864	48,614
Plantation sorts	97,942	32,160	39,929	36,131	14,704
Aggregating	727,223	1,041,002	969,464	1,119,312	1,232,640
Sales in June.....	384,032	267,025	508,947	642,892	547,774
Stocks, June 30.....	343,191	773,977	460,517	476,420	684,866

Arrivals since Jan. 1—

Congo sorts	1,417,416	1,642,593	1,655,626	1,716,209	2,257,536
Other sorts	69,166	246,953	167,522	554,564	285,105
Plantation sorts	612,634	331,476	262,060	132,731	63,184
Aggregating	2,099,216	2,221,022	2,085,208	2,403,504	2,605,825
Sales since Jan. 1....	2,430,563	2,035,257	2,166,203	2,522,819	2,927,853

RUBBER ARRIVALS FROM THE CONGO.

JULY 2.—By the steamer *Leopoldville*:

	Kilos.
Bunge & Co.....(Société Générale Africaine)	21,300
do	(Chemins de fer Grands Lacs) 5,900
do	(Cie. du Kasai) 34,000
do	(Comptoir Commercial Congolais) 4,600
Société Coloniale Anversoise.....(Haut Congo)	2,150
L. & W. Van de Velde.....(Comfina)	4,400
do	(Communière) 3,900
do	(Velde) 4,400
Charles Dethier	(American Congo Co.) 5,600
Comp. d'Irebu	850
Cassart & Henrion.....	700 87,800

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to June 24, 1911 and 1912. Compiled by the Ceylon Chamber of Commerce.]

	1911.	1912.
To Great Britain	pounds. 1,190,006	2,725,552
To United States	845,941	1,630,163
To Belgium	174,888	514,004
To Australia	16,714	69,010
To Germany	8,590	60,407
To Canada	9,971	16,065
To Austria		12,563
To Japan	20,556	8,315
To Italy	3,597	5,885
To Holland	100	2,282
To Norway & Sweden		39
To France	117	
To India	85	

Total 2,270,565 5,044,285
[Same period 1910—1,087,620 pounds; same 1909—497,677].

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

To.	Singapore.	Penang.	Port Swet-	Total.
	June 11.	May 26.	tenham.	
			May 31.	1912.
Great Britain...pounds	4,091,730	3,095,808	6,717,541	13,905,079
Continent	99,635	23,067	893,100	1,015,802
Japan	144,389			144,389
Australia	21,329			21,329
Ceylon		92,884	396,692	489,576
United States	952,162			952,162
Total	5,309,245	3,211,759	8,007,333	16,528,337
Same period, 1911....	2,421,941	1,764,641	4,836,703	9,023,285
Same period, 1910....	1,220,057	807,433	3,135,944	5,163,434
Same period, 1909....	1,079,664	1,223,361		2,303,025

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Vol. XLVI. No. 6.

SEPTEMBER 1, 1912.

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OUR SPECIAL EXPOSITION NUMBER.

ON the 23rd of the present month, the Third International Exposition of the Rubber Trade and Allied Lines—and the first rubber exhibition ever held in America, will open its doors in Grand Central Palace, New York. Vast preparations have been made for this event. Practically all the governments—over 20 in number—whose people are in any way interested in any phase of the rubber industry will be represented. There will be the most comprehensive display of crude rubber, both wild and plantation, ever brought together in any one place. The planters of the Far East have sent their products 12,000 miles for the benefit of the visitors at this exhibition. American manufacturers have taken hold of the enterprise with enthusiasm. It bids fair to be a more notable achievement even than the rubber exhibition held in London last summer.

We think that this unusual occasion calls for a special number. Accordingly our next issue, while under date of October 1, will be issued on the opening day of the exposition, September 23rd, and will be a special ex-

position number. In addition to the usual amount of general rubber information, this number will contain 20 pages, probably more, devoted exclusively to the exposition. It will tell what governments are represented, give the names of their representatives, and show the character of their displays. It will give a complete list of all the exhibitors, describing their exhibits, and illustrating them wherever this is possible.

It will contain a complete programme of the work to be undertaken by the conference, which is to be held jointly with the exhibition. The names, and official connections, of all the rubber experts who will take part in that conference will be given, together with the subjects which they are to treat. It will be a valuable souvenir of that exceedingly important and interesting event.

We intend to make it the most notable contribution to the periodical literature of the rubber industry that has yet appeared.

TWO OPPOSING VIEWS OF SYNTHETIC RUBBER.

ON another page in this issue will be found two strikingly antagonistic views of the synthetic rubber situation—one full of optimism, the other distinctly pessimistic. The first view is taken from a paper, addressed to a London publication, by Messrs. Strange and Graham, two of the leading champions of the new English synthetic rubber process, recently made public by Professor Perkin. They demonstrate, mathematically, the extremely low cost of synthetic rubber by the Perkin process. The necessary raw materials are all of an inexpensive character—starch from maize at 2 cents a pound, common salt at one-third of a cent a pound, coal at less than one-fifth of a cent a pound—the entire cost of raw materials necessary to make rubber being not over 4 cents a pound. The manufacturing expense, where production is engaged in on a large scale, would bring the total cost, they estimate, of a pound of their rubber up to 8 cents, or possibly 12 cents, per pound. At this price, all wild rubber will immediately disappear from the market, and the latex-gatherer of the Amazon with his tin cup and calabash will become merely a reminiscence. Plantation rubber will continue as long as it is desirable to have it do so, in order to maintain prices at a level where the synthetic industry may enjoy profits without precedent.

That is the side of the case as it appears to the promoters of the new process of making artificial rubber.

But Mr. Gustave Van Den Kerckhove, the Belgian rubber expert, views the matter from a different standpoint. He says that he has examined hundreds of samples of synthetic rubber, during the last twenty years, and never has found one that could compare with the brown biscuits from the Amazon. He concedes that synthesis has played a successful role in indigo, camphor and sundry other commodities, but he contends that the rubber problem is absolutely different—that in rubber the essential quality is elasticity, and that is something, in his opinion, chemistry cannot produce. He does not assert that the labors of the rubber builders have been in vain. He admits that many of these synthetic productions are good for compounding, that they make valuable adulterants; but as for synthetic rubber taking the place of natural rubber, he pronounces that a pure “mirage.”

So there are the two sides of the synthetic problem as it stands today. Probably somewhere between the two lies the truth. Up to the present time synthetic rubber, commercially speaking, has been a mirage, no doubt; but it must be remembered that the rapid pace at which civilized life has progressed, during the past hundred years, is due largely to the fact that so many mirages have been lassoed and put to work. Natural rubber was a mirage up to the time Goodyear struck a handful of it mixed with sulphur, against a hot stove.

A MEMORABLE DAY IN THE RUBBER COUNTRY.

NEXT Saturday, the seventh of September, will be a memorable day in the history of South American rubber development, for on that date will occur the formal opening of the Madeira-Mamoré railway. The richest rubber territory in the world will be opened up to commerce, and the dream of the Bolivians for the last fifty years will be realized.

This railway in point of extent is not impressive, as it is less than 250 miles long, but in its enormous cost in money and time, its exceptional demand on engineering skill, and in its great importance—not only to the Republic of Bolivia, but to the entire rubber industry, and thus to civilization in general, it is of larger significance than many railroads that extend across a continent.

It has been known for half a century that the territory drained by the tributaries of the Madeira river—itsself the most important tributary of the Amazon—was wonderfully rich in rubber. Thousands of tons of

rubber have been taken from this territory, but at a terrific cost in labor and human lives, and under difficulties almost insurmountable. The Madeira river is navigable to large steamers for 800 miles above the point of its confluence with the Amazon. Then comes a stretch of river about 220 miles in extent, containing 19 cataracts and rapids. Beyond this turbulent reach of water the Madeira and its tributaries are again navigable for nearly 1,000 miles. To make the passage through that succession of rapids and around the falls required 20 days of laborious and exceedingly dangerous work when coming down stream, and 30 days when returning. Hundreds of tons of rubber, and thousands of lives have been lost in making this perilous passage. By the opening of this railroad this distance can be accomplished without loss of property or life in a few hours.

Americans may feel a special pride in the success of this great undertaking, because it was an American, Lieutenant Gibbon, of the United States Navy, who, in 1852, first thoroughly explored this region; and it was also an American, the gallant and picturesque Colonel George E. Church, who nearly 40 years ago made the first attempt to build this road. He surveyed the distance, and built a few miles of the road, but was unable to proceed, because the financial supporters of the enterprise became alarmed at the great expense involved. And finally, it is owing entirely to American engineering skill and American sanitary science that the road has at last been completed.

ARE RUBBER GOODS DETERIORATING?

WHEN the able expounders who daily fill the editorial columns of our metropolitan press run dry of material, they are quite likely to resort to that always safe and interesting theme—the general deterioration of all things modern. An editorial writer in one of the New York dailies—and one usually characterized by sanity and moderation—in illustrating the reasons for the higher cost of living, spoke of the inferior quality of present day manufactures, and cited rubber as a case in point.

“For example,” he observes, “there is rubberless rubber—the highly adulterated product of an international trust. With a minimum of the elastic gum and a maximum of non-fibrous substance, articles supposed to be chiefly rubber are so weakened in durability and elasticity as to serve their purposes scarcely

at all—certainly only for a brief time. The consumer has to pay more for the article, only to throw it away in a marvelously short time and buy another. He pays 50 per cent. more than formerly and buys three times as often—an increase of 350 per cent. in this factor in the cost of living.”

This is interesting, but is it true? Is it a fact that the manufactured rubber articles of today are rubberless? Take tires, for instance—a proper subject for consideration, as tires now constitute fully one half of the rubber output of this country. Have they deteriorated? As a matter of fact, tires—or to be more specific, automobile tires—were never better than they are today. There has been a constant improvement, compelled by competition, until the standard tires today, if properly treated, are expected to give at least 6,000 miles of service. There are plenty of cases on record where they have given twice or three times that service. To be sure, it is quite possible to get inferior tires if the purchaser is disposed to consider nothing but the initial cost. Manufacturers will always be found willing to make what the consumer is anxious to buy, and wherever there are enough consumers looking for cheapness as the prime consideration, there will be a supply of inferior tires to meet this demand. But the man who wants a good automobile tire can supply that want more readily today than ever before.

Nor has there been any noticeable deterioration in other lines of rubber manufacture. There is as good hose available today as ever, and as good footwear. There is a certain well-known brand of footwear on the market in which the compound has not been changed in thirty years, notwithstanding the extreme fluctuations in the price of crude rubber during that time. Some manufacturers, when the price of crude rubber soared toward the three-dollar mark, may have sought to put less of it in their compounds; but, if in doing this they lowered the quality of their goods they have paid the penalty, for whenever any established manufacturer has lowered the quality of his output, he has done it at the expense of reputation—and of sales. There is enough demand for good goods to make it well worth the while of reputable manufacturers to maintain their standards, even though at times they are compelled to forego profits.

If the consumer finds that he is getting poor tires, unserviceable hose, and rubber boots that won't stand wear, he had better forthwith abandon the brand he

is using and find out what brands will give service—for there are plenty of them. Over 80,000,000 pounds of crude rubber are now used in this country every year. It must go somewhere. It would appear to be a reasonable suspicion that it goes into rubber goods. If it does, obviously there are a great many American rubber products that are not altogether “rubberless.”

THE RUBBER CHEMIST.

THE rubber chemist has at last come into his own. Fifteen years ago only a few rubber manufacturing concerns employed an expert chemist, but all that has been changed, and now with the exception of the small manufacturers, the rubber chemist is a recognized member of all rubber manufacturing enterprises.

There are three reasons for this change. The first is the great increase in the importance and value of rubber manufacture in this country. In fifteen years' time the value of the annual product of our American factories has risen from \$85,000,000 to over \$220,000,000. The second reason to which may be ascribed the rise of the rubber chemist is the great development that has taken place in the last decade and a half in rubber planting. Fifteen years ago the product of the rubber plantations was so small as to be quite negligible. Last year the product of the rubber plantations amounted to over 14,000 tons, and is likely in three years' time to be almost three times its present size. The third reason for the rapidly increasing importance of the rubber chemist is the prominent position that synthetic rubber now occupies, if not in commerce, at least in the thought and attention of the rubber world.

The work of the rubber chemist may be divided properly into two departments; one concerned with the production of crude rubber and the other with its utilization in manufacturing processes. Before the advent of plantation rubber, there was very little in the field of rubber production that the rubber chemist could interest himself in to advantage. The natural home of wild rubber among the inaccessible jungles along the Amazon, made it practically impossible for the white man to give this problem adequate study, but with the development of plantation rubber the situation has distinctly changed, for in the plantation the expert cannot only live with perfect safety, but he can work with every comfort.

The problem which confronts the plantation chemist is one of considerable variety, covering the soil, the question of fertilizing, climatic conditions, topographical

conditions, different methods of tapping and processes of coagulation. For instance, here is an interesting question to which the crude rubber chemist may properly devote his attention: What is the "nerve" of the rubber and how is it produced? Whoever solves that successfully will do a great deal to advance the interests of the plantations in particular, and the trade at large.

But it is the second department of chemical activity, namely, the chemist's work in the rubber factory with which this discussion is particularly concerned.

The chemist in the rubber works has before him the problem of taking the crude rubber as it arrives in the factory and getting the most out of it. At the present time, and probably for some time in the future, crude rubber supplies will be ordered rather according to physical tests than to chemical tests; that is, the purchasing agent will buy rubber which, in the opinion of the factory superintendent, after his years of experience, is best adapted to the purpose for which it is to be used. It is not likely that any considerable amount of crude rubber in the near future, at least, will be purchased by any chemical formula.

The rubber chemist in the average factory is not expected to do general research work for the benefit of the trade at large. Some larger factories may be able to afford this luxury, but, generally speaking, the manufacturer who employs an expert chemist, does so with the expectation that the result of the chemist's work will ensure to his own advantage. The chemist is expected to apply himself to the problems of that particular mill, to see if the rubber bought is actually the best for the intended purpose, and to see next if the processes through which the rubber is put in that particular mill, are those which produce the best goods for their cost.

The importance of the work of the factory chemist can be judged from the enormous volume of crude rubber that annually goes into manufactured goods. In this country alone the manufacturers consume \$100,000,000 worth of crude rubber each year, and the annual value of their output is over \$220,000,000. It is obvious that if the chemist can secure only a small percentage of increase in the value of this annual output, his task is a most important one. His primary problem is the old question of vulcanization, the combination of sulphur with the rubber and the subjection of the two to heat. If this covered his entire problem, he would have plenty of range for his activities, for the number of permutations possible in the volume of sulphur and the amount of heat is almost limitless; but there are various other elements that enter into the situation—litharge, whiting and other ingredients that are usually employed in rubber compounding. Some of these ingredients act simply as fillers, others undergo a pronounced chemical change during the process of vulcanization. In addition, there is the problem of the proteids, whose presence in crude rubber and whose tendency to decompose when subjected to heat further complicate the situation.

It is a vast field that opens up before the rubber manufacturing chemist. He can hardly expect to cover it all himself. He must look for more or less assistance—and he will not look in vain—to the laboratories of the schools. The university chemist is in a different situation from that of his brother in the factory. The university chemist is in pursuit of knowledge in general. He is interested in any sort of discovery that widens, even in the least appreciable degree, the general domain of knowledge, regardless of the immediate practical results of his discovery. It has been true in the past—and will doubtless continue to be true—that the work of any individual college laboratory may not have been of very great value in itself, but when supplemented with the work done in other college laboratories, the aggregate result has been of great importance. So the practical working chemist may always expect considerable assistance from the more leisurely methods of the school laboratory; but to him the manufacturer looks for quick and practical results.

The qualifications of a successful factory chemist are various. In the first place he must, of course, have an accurate technical knowledge, such as it is the aim of reputable technical schools to afford. This "book learning" which he has, ought to enable him to detect at once any errors into which the "practical" man by too close following of ancient traditions may have fallen; and in the second place, he must have infinite patience, for the work of the laboratory is exceedingly laborious. It is done in sequestered quiet, far away from the sustaining interest and applause of the public, and a man must depend upon his own natural persistence to keep him steadily at work. It is a continual groping in the dark, with here and there a feeble ray of light. He can hardly expect, although the hope may remain constantly in his breast, to make any revolutionizing discovery. Those come only once in a generation. He must be satisfied if he is making progress, no matter how slow it may be. He must also have a natural bent for experimentation. The lure of new possibilities must have a strong hold upon him. But this must be balanced by such a controlling common sense, that he will be willing to give up any course of inquiry that he has pursued, when he becomes convinced that it will be fruitless, even though he has devoted months of time and energy to this particular line of investigation.

It goes without saying that the chemist should have all the encouragement that comes of the intelligent assistance of the superintendent, and his helpers, whose knowledge comes less from books than from years spent in the mill. He should also have the further encouragement of a prompt recognition on the part of the manufacturer of the value of his services. His services should not be gauged, like those of the clerical and mechanical force, by the time of his coming in the morning and the hour of his going at night, but rather like the expert legal adviser who is associated with every large business enterprise, his services should be gauged solely by the results achieved.

Trinidad and Its Rubber—III.

By the Editor of "The India Rubber World"

A Notable Agricultural Conference—Interesting Addresses—Important Paper by Mr. Collens—His Description of the Mongrel Hevea—The Island of Tobago—The Original Home of Tobacco—Where Robinson Crusoe Had His Wonderful Adventures—The Birthplace of Two Good Ideas—Tapping Castilloa and Its Coagulation—Castilloa Tapping Results.

I WAS fortunate in being in Trinidad at the time of the great agricultural conference this year. Dr. Francis Watts, the president, was good enough to see that I was made an honorary member, which admitted me to all of the sessions and functions. It was also a great time saver for me, as the heads of departments from the Guianas and all of the West Indian Islands were present. Thus, I did not have to go to British Guiana to see Professor Harrison, to Dutch Guiana to meet Dr. Cramer, or to any of the islands to see those interested in rubber. They were all there. I was glad as far as the Guianas were concerned, for a great drouth prevailed there all winter, and travelers were not comfortable. Fortunately, drouths occur about once in a hundred years only, and it is hardly likely that in the writer's life time at least, the beautiful Guianas will again be places to avoid.

Of the many lectures and discussions upon rubber, one of the most notable was a scholarly paper read by Mr. A. E. Collens, F. C. S., the assistant analyst and lecturer on botany, and the officer in charge of special investigations. He has in the past few years visited almost all (if not all) of the plantations in Trinidad and Tobago, examined the rubber, tapped, coagulated and tested, and in addition kept close watch upon the growth and production of the trees in the government gardens in Trinidad.

His paper gave from the beginning rubber planting in the two islands; *Heveas*, *Castilloas*, *Funtumias*, etc.

In his description of the experimental work at the St. Clair Experiment Station, he touched upon the supposed hybrid of the *Hevea Brasiliensis* and the *Hevea Confusa*. It will be noted that he did not affirm as an established fact that the trees are hybrids, as that has not been proved. His description of the mongrel *Hevea* is as follows:

"Bark, coppery or rust-colored, instead of grey; bark, thin and usually only slightly over 1/4-inch in thickness, in some cases much less; latex, creamy yellow; rubber, slightly sticky and inferior in elasticity; leaves, semi-transparent, with reticulated or criss-cross veins, especially noticeable when the sunlight is passing through the leaves. Seeds, larger than those of *H. Brasiliensis*; rounded angled, greyish-blotched and somewhat elastic or yielding when pressed; these seeds are fairly distinct from the seeds of the *H. confusa*, they somewhat resemble *H. pauciflora* in general aspect, but are larger. General characters of tree, tall, good growth, umbrageous, fairly dense foliage.

"As there were two large trees at Government House Gardens, one yielding white latex and the other yellow, both identified at Kew as *Hevea Brasiliensis*, it is possible that

these may be offsprings from the seeds of the latter. Unfortunately, the yellow latex-yielding tree was cut down, some two or three years ago, and it is impossible to obtain any record of the nature of the bark, seeds, etc., for comparison. It has been suggested that they are hybrids between *H. Brasiliensis* and *H. confusa*, but this can only be assumed for the present, since as is stated by Huber (1911): 'It is not proved that *Hevea* can hybridise, but it is not impossible.'



TAPPING "CASTILLOA" TREES, 20 FEET UP, ON BAMBOO LADDERS

"It would be interesting to isolate plants from these seeds, with a view to ascertaining whether the offspring is constant, or if any variation on Mendelian lines results.

"Eight additional trees of a similar type, which have lately been tapped on the full herring-bone system for half the girth of the



ONE OF THE FIVE ISLANDS, TRINIDAD.

tree, yielded during the months of November and December, 1911, 45.4 oz. of dry rubber, being an average each of 5.7 oz., approximately.

"The inferior trees have produced very little seed during the past two years, and all such seed has been collected and forwarded to the Laboratory, to avoid any possible admixture with good types. The policy of the new department has been to plant seeds from authenticated trees which have been proved to give good quality rubber and a large yield. Some 10,000 of these selected seeds have been planted out. The *Confusa* tree has been lopped of all its branches.

"The rubber produced by *H. confusa* and *H. pauciflora* is of inferior quality; the latter type hardly possesses any elasticity. Although they show a certain amount of wound response, the yield is very disappointing; it required ten tapings of *H. confusa* to obtain 2 oz. of dry rubber.

"A trial shipment of this so-called inferior rubber at St. Clair was recently valued at 4s. 3d. per lb. fine Pará being quoted at 4s. 6d. to 4s. 7d.

"The trees were tapped every other day on the following systems: (a) single and double herring-bone on half the girth of

the tree; (b) single herring-bone on opposite quarters (only on the two largest trees); (c) double herring-bone on quarter girth of tree; (d) single herring-bone on quarter girth of tree.

"Of the above four systems, the last proved more favorable and was less injurious to the tree. The double herring-bone system, with either alternating or opposite lines, is apt to cause a place of damage where the gouge meets the vertical line."

I have quoted this in full because there has been so much interest among planters since they have learned that a tree that would pass inspection among many experts as a true *Hevea Brasiliensis*, was really quite a different *Hevea* and one that would prove a disappointment as a rubber producer.

Much of what has been done in rubber planting and in experimental work in Trinidad has already found place in these pages. So far, however, little has been chronicled about planting in the nearby island of Tobago. It is some twenty miles from the larger island and under the same government. It is a romantic spot, with enough in its historic past to make it one of the best known islands of the world. For example, a certain seductive weed, native there, was brought to England by Sir Walter Raleigh, smoked in a pipe, and called Tobago. That we call it Tobacco should not lead us to forget the birth place of "My Lady Nicotine." Were the English properly alert they would rename the island "Tobacco" and its fame would be everlasting. One would think that of the thousands who have drawn comfort and inspiration from the pipe, some, at least, would have builded here a shrine, a Mecca of smokers, where they could burn incense of their own special brand and dream in the very heaven of soporifics. But no; the fact is forgotten!

So, too, is the fact that this was the real island of Robinson Crusoe, and not Juan Fernandez in the far away Pacific. To really prove this and appreciate Defoe's story, that is the humor of it, one should do as we did, secure a copy of the book and

read it in the hot tropical twilight. How poor Robinson must have suffered in his suit of goat skins, how that huge skin helmet must have heated his head. But the author, used to temperate climes; could not imagine tropical heat. Could he have visited Tobago, enjoyed its wonderful climate, seen its brilliant flowers, its gorgeous birds, its magnificent scenery, what a book "Robinson Crusoe" would be—fascinating though it is as written.

John Paul Jones lived here

for a short time at the beginning of the nineteenth century. Since then nothing of interest has happened—that is, of historic interest. But of commercial—very much. The leading town, Scarborough, with 2,500 inhabitants, has become quite a shipping port, and the



Castilloa AND Cacao, TOBAGO

18,000 or more inhabitants have sent out to the world, sugar, cocoa, coffee, cocoanuts, nutmegs and rubber.

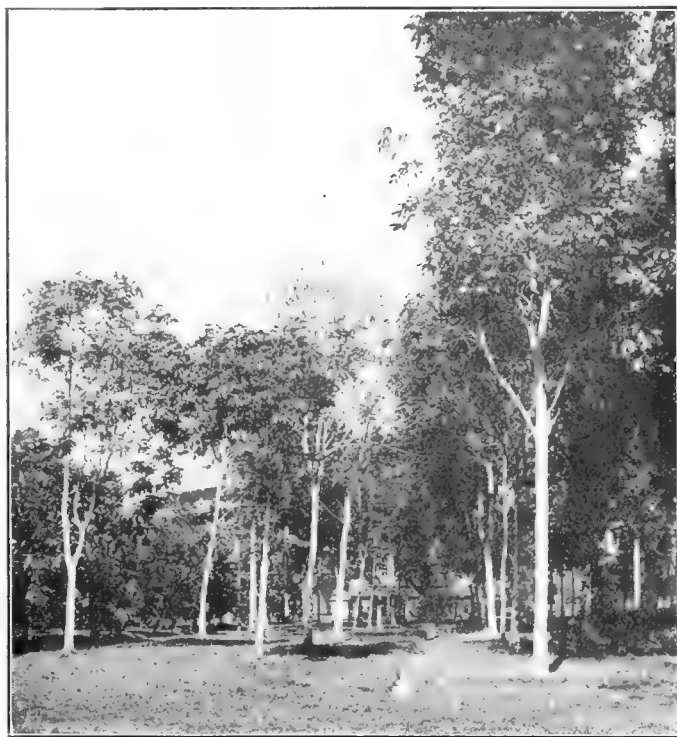
Tobago has the distinction of being the birthplace of, not only a most excellent system of tapping *Castilloa* trees, but an equally good system of coagulation.

It will be remembered that almost all tappers of plantation *Castilloa* were in the habit of gouging the bark much after the fashion of *Hevea* tapping, either in zig-zags, half-herring bone, or adaptations of those systems. As the bark is exceedingly tough, a very strong knife was necessary and very definite channels were cut. Tobago, however, turned its back upon established procedure, and instead of cutting the bark away, simply pierced it with a broad chisel—getting just as much latex, and allowing the wound to heal very quickly. Then, instead of coagulating with alum or *amole*, Mr. Harry S. Smith, a planter there, constructed a centrifugal machine, which promptly and thoroughly coagulated latex. This machine was different from the ordinary centrifugal used in the coagulation of rubber; for example, it had certain valves which admitted of the escape of the "black water" while the machine was running at full speed. It also coagulated the rubber in something like 20 minutes, leaving only about one per cent. of water in the rubber. Taken by and large, the machine was wholly novel and thoroughly successful and Tobago—through Harry Smith—scored a second time.

Castilloa trees in Tobago seem to be excellent producers, and the planters there are tremendously interested in this tree. They believe in high tapping—often going 10, 20, 30 and even 40 feet up on the tree. At the present time, however, they are tapping about 20 feet up, using light bamboo ladders for that purpose.

The first chisels were made from ordinary kitchen knives with the blade broken off and sharpened at both sides and at the flat base. This gave a cleaner cut than the chisel would, and was in itself really a new type of tapping tool. The tapping knife is

the tree is tapped at a time—sometimes only one third. To prevent the collection of too much scrap in the wounds, the bark



TWELVE-YEAR-OLD *Hevea*, EXPERIMENT STATION, ST. CLAIR.

is wiped off with a wet brush which is continually dipped in a can of water. Mr. Collens gives the following results of his *Castilloa* tapping on a typical estate in Tobago:

RESULTS OF TAPPING *Castilloa*, LURE ESTATE, TOBAGO.

First tapping from April 6 to May 18. (Trees Fruiting.)

Tapping day.	No. of trees tapped.	Total yield of dry rubber.		Average yield per tree.	Remarks.
		lb.	oz.	oz.	
1	2	1	0	8.0	From 1st to 19th day trees were tapped to height of 20 feet on half girth of tree.
2	6	3	12	10.0	
3	11	3	9	5.0	
4	12	6	7.5	8.6	
5	12	4	0.5	5.3	
6	9	2	2	4.0	
7	9	0	14	1.5	
8	6	2	12	7.3	
9	10	6	12.5	10.8	
10	13	4	14	6.0	
11	12	4	5.5	5.8	*Trees tapped to 20 feet height, but all round trunk.
12	15	4	5.5	4.6	
13	17	4	15	3.8	
14	12	3	1.75	4.1	
15	16	3	2	3.1	
16	14	2	14	3.3	
17	22	3	10	2.6	
18	7	3	10	8.3	
19	13	2	10	3.5	
20*	12	4	6.5	5.8	
21*	12	4	11.5	6.3	
22*	12	4	14	6.5	
23*	12	2	12	3.7	
24*	7	2	4	5.1	
25*	9	2	10	4.6	
26*	6	2	9	6.8	
Total.....	288	92	2.75	5.12	



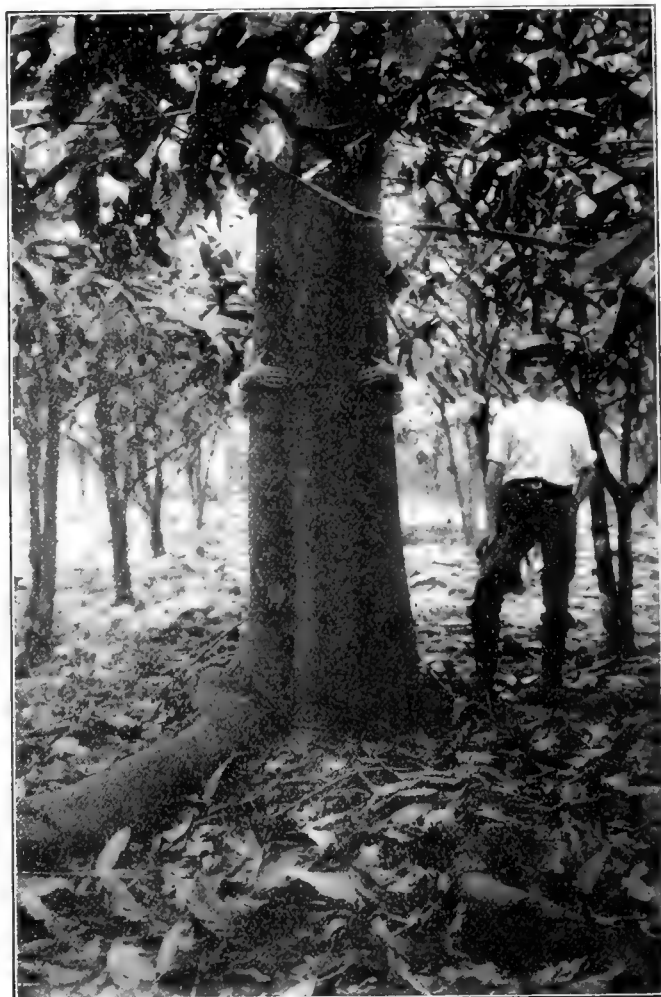
Castilloa TREES, TOBAGO.

struck with a wooden mallet until the bark is penetrated—the latex dropping down into an oilcloth apron which is fastened around the base of the tree. About one-half of the bark area of

Second Tapping from August 7 to September 15.

Tapping day.	No. of trees tapped.	Total yield of dry rubber.		Average yield per tree.	Remarks.
		lb.	oz.		
1	9	2	12	4.9	
2	10	3	8	5.6	
3	8	3	12	7.5	
4	9	3	14	6.9	From days 1 to 17 trees were tapped to height of 20 feet on half girth of tree.
5	9	2	4	4.0	
6	6	3	4.5	8.7	
7	10	3	8.5	5.6	
8	12	3	2.5	4.2	
9	12	0	12	1.0	
10	13	3	4.5	4.4	
11	12	1	4.5	1.7	
12	15	0	14	0.9	
13	12	2	2.5	2.9	
14	10	1	10.5	2.6	
15	13	0	10.5	0.8	
16	12	1	10.5	2.2	
17	12	1	0	1.3	
18*	12	1	12	2.5	
19*	12	1	12	2.3	
20*	12	1	6	1.7	*Trees tapped all round to height of 20 feet.
21*	8	0	10	1.2	
22*	10	0	10.5	10.5	
23*	12	0	10	0.8	
24*	5	0	10.5	2.1	
Total scrap ...		6	8.5		
254		53	7.5	3.37	

was somewhat high—working out at 39 cents (1s. 7d.) per lb. The trees were manured with sodium nitrate three days before the second tapping was commenced.



AN ELEVEN-YEAR-OLD *Castilloa* TREE, TOBAGO.



Heveas, TOBAGO.

Tapping operations were only conducted for three hours per day, as the laborers lived some distance from the estate. The total cost of collecting and curing the rubber, on this account,

The department is alive to the possibility that almost any latex giver may turn out to be a rubber producer. Hence, everything is tested. As a matter of record Mr. Collen's tests of such trees as the bread fruit are apropos. The latices from the following trees were experimented on:

Good Luck-Tree—*Thevetia nerifolia*.

Bread Fruit—*Artocarpus incisa*.

Bread-nut—*Brosimum Alicastrum*.

Frangipani—*Plumeria alba* and *P. rubra*.

Hedge cactus—*Euphorbia canariensis*.

With the exception of the products obtained from the Bread-nut and Bread Fruit latices the results are disappointing and of little or no value. The former would be useful for making chewing gum, but the cost of collection on a systematic scale would probably prove prohibitive.

I want to add as a postscript that there was a man in Trinidad (Jacobson by name) who is one of the most expert and artistic photographers in existence. He gave me most of my best photographs, and incidentally, I told him that any that I used I should tag "Jacobson Photographs." But Professor Carmody, Mr. Collen and many others also furnished me with fine photographs and I took some myself and they all got mixed. If, therefore, any reader sees a particularly striking picture in any of these articles, let him imagine that it bears the proper credit "By Jacobson."

(To be continued.)

Rubber Floors in Churches.

THE market for india rubber matting in colors to harmonize with the decorative motifs of the walls and art windows of churches is extending throughout North America. Notably fine effects are produced in Gothic and Romanesque designs, and in the interlocking rubber tiling the artistic effect is strikingly good in the reproduction of the motifs and the colors of the beautiful French and German tiles of the XIV and XV centuries.

In a number of contracts for rubber matting for churches and chapels in and about New York, the designs are after the geometrical pattern tiles that are so much used in the aisles of English cathedrals and college chapels. For the past five years, six churches a day have been built in our country. This concrete fact sets forth the importance of churches as buyers of floor coverings. Rubber matting and tiling are particularly appreciated by buyers of church and chapel floor coverings by reason of their noiseless, sanitary and non-slippery qualities. In Roman Catholic and Episcopal churches rubber matting is coming into general use, not alone for the covering of the aisles and chancels, but on the steps of the altar and on the platform of the altar, on which the clergy walk when celebrating the offices. Many accidents have befallen clergymen through falling on slippery marble altar steps and platforms. Before the art of making rubber matting artistic as to colors became developed, a few old clergymen in the Catholic church who were weak in the legs, to safeguard their feet when at the altar, put upon the steps and platform plain rubber matting. But this was condemned by the Vatican, because in theory, the floor of the sanctuary and the approaches to the altar are held by the Roman and the High Anglican Church to be a part of the field of Calvary, and none but green floor and step-covering is canonically correct. The proper shade of green is now obtainable from all makers and distributors of rubber matting.

Only a few years ago, the floors of the majority of the domestic churches and chapels were bare wood. Then came the general use of cocoa matting, and that was followed by the use of clay tiles and mosaic pavements for aisles in churches with large incomes. Now the movement is for the discarding of cocoa matting and carpets and clay tiles, and the substitution of rubber

matting and rubber tiles in colors. When the present Cardinal Archbishop of Boston became a bishop at Portland, Maine, the pounding of the feet of thousands of his people on the hardwood and clay tile floors and stairways of his cathedral made such unendurable noises that he sent for a friend in the rubber trade and asked him what he could do. At that time rubber matting and tiles in colors to match ecclesiastical decorations were not made. But the bishop decided to put down ordinary rubber matting, and the noise ceased. That led to the general introduction of rubber matting in many churches in New England. Today, much of that drab-colored matting is being displaced for matting and tiling in right ecclesiastical colors. A

number of clergymen and ecclesiastical architects with whom the writer has talked concerning this matter say that where rubber matting is used on floors and stairways neither the preachers nor the singers or organists are disturbed by late comers, as was the case when the flooring and treads of stairs were wood or stone.

One of the large churches in New York is about to discard carpeting and woolen rugs in its church, chapels, guild house, hospital and dispensary, and substitute rubber matting and tiling, not only because of the noiselessness of rubber, but because the chief physician of the parish hospital ascertained that after the carpets are thoroughly cleansed, which occupies eight men for a day, he

has found billions of disease germs in a square foot of the carpet. An architect is planning changes in the flooring of one of the largest of the metropolitan churches, so as to have the floor slope at such an incline as will permit of the washing of the aisles and under each pew with hose when the flooring shall be of decorated rubber matting. The rector of the parish got the idea from watching men on the Lackawanna railroad's ferryboats cleanse the floors that are laid with decorated rubber matting and tiling. When the railroad used wooden or mosaic flooring for the smoking cabins of its boats, the deck hands could not keep the floors clean. Since rubber matting has been used, the smoking cabins are kept scrupulously clean, and at no more than the cost of cleansing the cabin for women.

All librarians give the preference to rubber flooring, and have brought about its use in almost one-fourth of the public libra-



RUBBER TILING IN A CHURCH AISLE.

ries of the country. Prospects of floor coverings in general are reported good.

Interviews with the heads of a number of large city retail carpet and rug houses indicate that, in their opinion, the sale of colored rubber matting and mats will in 1912 make a large gain over the sales of the past year. The president of a wholesale and retail carpet house says that the year of 1911 showed sales of about 125,000,000 yards of all kinds of carpets by all dealers. He estimates that the year's sales of rubber matting and tiles, in colors, were not above 2,500,000 yards. When it is considered that there are 14,567 stores in the United States that retail carpets, matting and rugs, and that only a few of these push the sales of decorated rubber matting and tiles, the thought is obvious that the field for increasing the consumption of these products is one in which much missionary can be done with profit.

While on the subject of rubber in churches, there is another interesting way in which rubber is employed, which, while somewhat removed from flooring, is distinctly a church use and worthy of consideration. The rite of baptism by immersion, as practiced by Baptists and several other denominations, and also by the two branches of Latter Day Saints—otherwise called Mormons—accounts for a small but fast growing branch of the making of india rubber clothing. Baptists in the United States and Canada have 58,000 churches and 44,000 ministers. The number of baptismal office india rubber suits used by these ministers is estimated at 37,000. There are several patterns. That which is most in use consists of a pair of boots and trunk hose in one piece that comes to six inches above the waist line, and a long coat wide in the skirts, that when on the person is shaped something like a military cape overcoat. The color in greatest request, at least among the younger members of the clergy, is cream or ecru. The Mormons use the same patterns, and the colors are light brown, ecru or red. In baptisms in rivers or lakes it is the usual custom of the Mormon missionary to don a red india rubber suit, the color being symbolical of the blood of Christ.

In a considerable number of large Baptist churches in eastern and western cities, candidates for baptism who are in delicate health, acting under medical advice, don india rubber suits when being baptized. These suits are provided by the church, and are almost like the suit worn by the clergyman.

In thousands of instances, the baptismal tanks in the churches are provided with rubber covered steps. Where the tanks are of wood they are, in most instances, covered with compounds high in rubber content. Following the sacrament of baptism by immersion as performed in thousands of churches, the candidates, after the immersion, are escorted out of the tank to the platform at the top thereof (which is covered with an india rubber mat to protect the carpet from dripping water) and there fulfil the remainder of the offices appointed for concluding the service. Some of these mats are as large as 20 feet by 40 feet.

The various branches of the Greek Catholic Church baptize by immersion. In Europe and Asia the Greek clergy never wear india rubber suits when baptizing, but in this country most of these priests have adopted when performing baptism, a suit somewhat like that worn by Baptist ministers, but belted in at the waist, and the coat part shaped like a cassock and surplice as worn by Roman Catholic and Episcopal clergymen.

A book for rubber planters—Mr. Pearson's "What I Saw in the Tropics."

AN EXAMPLE OF SOUTH AMERICAN CIVILITY.

IN hustle, prevalence of automobiles, height of skyscrapers, and in the number of malefactors of great wealth, North Americans undoubtedly have the advantage of their neighbors to the south, but when it comes to fine traits of courtesy the South Americans can teach us much.

Here is a case in point.

Two years ago the editor of THE INDIA RUBBER WORLD had the pleasure of attending a rubber conference at Manáos. As it was known that he had traveled quite extensively through rubber plantation countries, he was asked to deliver some lectures on plantations and other rubber subjects. This he did, accompanying his remarks with lantern slide pictures. The warmth of his welcome and the obvious appreciation of his audiences more than repaid him for his efforts. In this country an event of that sort usually receives a vote of thanks, and then is immediately wiped off the slate, and passes from memory.

But in Brazil things are done differently. A writer in a recent number of the "Monthly Review," published by the Amazonas Commercial Association, apropos of the selection of the editor to act as chairman at the Rubber Exposition Conference, delivered himself of this kindly, not to say glowing, eulogium, which a thoughtful friend has forwarded to this office. If it were submitted to the editor, he undoubtedly would protest that it was absolutely undeserved; but that is not the point. The point is this, that a small favor should two years after its performance still be so pleasantly remembered and be repaid with such a warm encomium. The tribute is entitled, "TERCEIRA EXPOSICAO INTERNACIONAL DE BORRACHA, 1912. UMA HOMENAGEM AO DR. H. C. PEARSON," which being interpreted signifies "The Third International Exposition, 1912. A Tribute to Dr. H. C. Pearson," and the writer continues, according to our conscientious translator, as follows:

"The Third International Rubber Exposition is to be held in New York from September 23 to October 3 of this year. To the position of vice-president Dr. H. C. Pearson, Editor of THE INDIA RUBBER WORLD, has been elected.

"The choice is most fitting. Dr. Pearson combines in himself all the qualities necessary to fill the position in the brilliant way that it calls for, and his election to the post gives us once more an opportunity to bear witness in these columns to our appreciation of our distinguished colleague.

"The London 'Times' also yields to none in its homage to Dr. Pearson. On the occasion of the First India Rubber Exposition in 1908, as is well known, the great London daily devoted to him a long and brilliant editorial, in just recognition and criticism of his valuable work. What the 'Times' has said expresses exactly the truth.

"The propaganda to which it refers was not limited to matters of interest to THE INDIA RUBBER WORLD. The editor's voyages of research have not merely a technical flavor; they show the spirit of one who delights in combining in his writings sound observations and ideas.

"The 'Congresso Commercial Industrial e Agricola' of 1910 brought Dr. Pearson as our visitor in Manáos. Everyone has pleasant recollections of his lectures to select audiences in the Theatre Amazonas. Illustrated by lantern views, they were intended to arouse our attention to the progress and huge growth of the rubber industry, and of rubber planting in the Far East.

"The pointing out of the dangers which threaten us, the competition from Asia, which possesses powers capable of overthrowing the supremacy of Amazon rubber in the consuming markets, has been the great aim of Dr. Pearson's labors for many years. To see the immensity of his services to this country in this respect, it is only necessary to glance through the volumes of THE INDIA RUBBER WORLD.

"The occasion of this new appointment should be taken advantage of by us to mark in a fitting manner our appreciation of Dr. Pearson."

IMPORTS OF AMAZON RUBBER DURING THREE MONTHS.

During the first three months of 1912 the United States imported rubber from Pará to the value of \$6,512,165, and from Manáos to the value of \$6,200,435.



BAPTISMAL PANTS.

The New York Rubber Exposition.

AN INTERVIEW WITH MR. MANDERS.

SHORTLY before this issue went to press a representative of THE INDIA RUBBER WORLD called upon A. Staines Manders, organizing manager of the International Rubber and Allied Trades Exposition, to be held in Grand Central Palace, New York, from September 23 to October 2.

The Grand Central Palace of New York is said to be the finest exhibition building in the world. It certainly lives up to its name. It is a palatial structure. It runs the whole block from Forty-sixth to Forty-seventh street, is about 275 feet in depth, and rises thirteen or fourteen stories high. The first three floors are arranged especially for exhibition purposes and extend the whole width and depth of the building. The second and third floors, however, have less floor space because of the large open court in the center looking down on the first floor.

Mr. Manders—who may be called a cosmopolitan Englishman, because, though a Britisher-born, he has been all over the world, and at one time lived long enough in New York to, at least partially, Americanize him—was found in his private office deep in business. Belated exhibitors were anxiously inquiring about space; early delegates from abroad were calling to pay their compliments, and to get the news. But in due time he managed to dispose of the other callers and the interviewer was ushered into his office.

"Mr. Manders," began the man from THE INDIA RUBBER WORLD, "the purpose of this call is to get all possible information about the exhibition that you are organizing; but first I would like to ask you how you ever came to get into this obviously sizeable undertaking."

"That is easy to answer," he replied. "In 1907 I was interested in the Travel Exhibition in London. Among the exhibits from South America were two big biscuits of rubber from Brazil. Some of the rubber men of England said to me, 'Why don't you get up for us a good rubber show?'. Fifteen months from that time the first International Rubber Exhibition ever held was

opened in London. It was in the fall of 1908. That created so much interest that a repetition of it was demanded, and the Second International Exhibition was held, on a much larger scale than the first, in July, 1911. Then it seemed very natural that the third exhibition should be held in the country, where the greatest amount of rubber is consumed, for America uses as much rubber as all the rest of the world besides. Moreover, a good many of the American visitors to the London show said, 'We ought to have one.' So that is the way the New York Rubber Exposition came about."

"How is this exposition going to compare, in size, and in other respects, with the two London shows?"

"Well, in point of size, it will occupy about four times as much floor space as the first London show, and about the same floor space as the last London show. We had more room in London last year because we occupied two buildings, and that enabled us to spread the exhibits a little more. We used there 160,000 square feet of space, and we will use here (including the room occupied by the rubber moving picture shows) 140,000 square feet, which is the total of the three exhibition floors. In point of exhibits, the New York show will be equal in every respect to the last London exhibition—and in many respects superior to it. It



THE GRAND CENTRAL PALACE, NEW YORK

will be noticeably superior in the extent and variety of manufactured goods displayed; and even in the crude rubber department, where London was particularly strong, the New York Exposition will excel in a number of features. Brazil, for instance, will contribute five times as much crude rubber on this occasion as it did in London. The Brazilian contributions, all told, will amount to 100 tons of rubber.

"There will be a number of working exhibits here quite ahead of anything seen before. There will be an experiment station, open to visitors. The United States Government will have a testing plant presided over by Government experts."

"How many divisions will there be in the exposition?"

"There will be three. First, manufactured goods and manufacturing machinery, which will occupy the whole first floor; second, the allied lines, including reclaimed rubber, chemicals, compounding mixtures, etc., which will occupy the second—or, as it is usually called, the mezzanine floor; and third, crude rubber, which will fill the third floor.

"Twenty different governments have sent exhibits of crude rubber. Brazil, as I have said, is sending 100 tons of wild rubber—chiefly *Hevea*. Bolivia will also send a fine exhibit of *Hevea*. Dutch Guiana will exhibit *Castilloa*; and we will have plantation exhibits from the Federated Malay States, which will send 18 tons. Ceylon will show ten tons; and smaller quantities will come from the Dutch East Indies, Indo-China, Burma, the Hawaiian Islands, and many other points. Some of these exhibits—notably two fine lots, one of over three tons from the Federated Malay States, and one of two and one-half tons sent by Ceylon, will be entered for the gold, silver and bronze prizes offered by the Rubber Growers' Association of London.

"In the display of rubber manufactures, I can safely say that practically nothing will be lacking. Every type of manufactured goods—footwear, clothing, tires, mechanical goods, dipped goods, molded goods—all will be shown; and some of them—like fire hose—will be shown in the making. There will also be a working exhibit in the rubber reclaiming department, and the interested visitor can see how this industry is carried on."

"What special features will there be?"

"One novelty, and a feature quite unlike anything seen in either of the other international rubber shows, will be a horse traveling, at whatever rate of speed he may be disposed to display, over a rubber road. The road will be constructed of rubber blocks made by a Chicago manufacturer. It will be a moving road so that the horse can keep in motion, and yet not get too far away from the rest of the exhibits. There will also be rubber flooring everywhere; in the entrance, on the stairs and in front of many of the booths, for a great many of those who have taken space have arranged to cover their space and the adjacent passages with rubber. The visitors will find it the easiest-walking exhibition hall they were ever in. Another feature, somewhat unusual, and of a character to meet with the decided approval of out-of-town people, will be the generosity displayed by some of the manufacturers in furnishing—not only free telephone booths for their customers, but expert stenographers, who will do their correspondence for them rapidly, cheerfully and gratis."

"Do you expect a large attendance from abroad? I think it safe to assume that the home attendance will be of noticeable proportions."

"Yes, there will be a great many foreign visitors. A large number of governments have sent representatives, and in addition to that, states and provinces and chambers of commerce, and other organizations in the rubber countries have sent delegates. There will be 50 delegates from Brazil alone, with Dr. Dahne as chief official commissioner."

"The exhibition will begin, I suppose, promptly on September 23."

"It will open, without doubt, at noon September 23. We had hoped to have President Taft, who has been kind enough to act as patron of the exposition, present to make the formal opening, but he advises us that unfortunately he had already agreed to attend the Hygienic Congress which meets in Washington on that same date; but he expects later to visit the exhibition. While it will open on the 23rd to the public, there will be a private view, open only to members of the press, the day preceding. There is every reason to believe that the attendance is going to be large, because in addition to rubber men and general visitors, there will be several special days, when a large number of people will come because of their interest in some particular country or locality. For instance, September 24, is Brazil Day.

Four thousand invitations will be sent out by the representatives of that government, and the Ambassador of Brazil will be present to receive the guests. There will also be a Ceylon Day; and so many people from Akron have expressed their intention of visiting the show, that there will probably be an Akron Day. On the night of the 3rd of October there will be a banquet open to those who have been connected with the exhibition."

"I suppose that will be well attended."

"Well, the closing banquet at the London Exhibition was



A. STAINES MANDERS.

attended by over 260 people, and was a delightful—not to say brilliant event. I do not think New York is likely to fall behind London in this particular part of the exposition."

The interviewer did not ask Mr. Manders much about himself, but people who attended the London International Rubber Exhibition held last summer say that he is a marvelous organizer, and that he will give the rubber industry of America a genuine revelation of itself.

THIRD INTERNATIONAL RUBBER CONFERENCE.

IN the year 1893, at the Columbian Exposition in Chicago, a little group of chemists from many lands met to confer on topics of mutual interest. They incidentally laid the foundations for that tri-ennial conclave which is known as the International Congress of Applied Chemistry. The eighth meeting of this congress will be held in New York City from September 6th to 13th, 1912.

As the discussions at these meetings center almost entirely on chemistry, so the International Association for Testing Materials has devoted most of its energy to the solution of problems connected with raw materials used by engineers.

With these two conventions as "forerunners," the Third International Rubber Conference will convene in spacious chambers at the Grand Central Palace in New York City, September 24th, 1912. A considerable number of chemists and engineers of the rubber industry have communicated with the secretary, with regard to the character of the topics which will be brought forward for discussion at the meetings of the Rubber Conference.

It is a matter of common knowledge that a large number of national societies and railroad corporations have spent considerable time and energy in developing specifications for materials; so that it is not surprising that most of the letters thus far received have suggested that the question of "Specifications" be ventilated.

Some manufacturers have well-defined opinions concerning the new fire-hose specifications; and probably more time has been spent in discussing the subject privately than would have been the case if the manufacturers and the underwriters had met in general session, there to thrash out their differences.

This is but one of the very sensitive points of interest which should be considered at a conference devoted to the interests of manufacturers and consumers of rubber goods.



DR. FREDERIC DANNERTH.

Similarly, the specifications prepared by certain railroad companies are considered by some to be beside the mark. The United States Navy, the manufacturers of insulated wire—these and many others are interested in the question of specifications.

It was with this in view that invitations were sent to the chief chemists and the engineers-of-test of the principal American railroads, the National Fire Protection Association, American Society for Testing Materials, the United States Department of the Navy, the United States Bureau of Standards, and the American Institute of Operating Engineers.

Aside from these interests, there will be in attendance at the Conference, representatives of rubber goods manufacturers, planters of rubber from tropical countries, textile specialists and others who are vitally interested in the future of the rubber industry. After a careful consideration of the subjects to be discussed at the Congress of Applied Chemistry, it was considered desirable to take up at the Rubber Conference those topics which appear to be of more immediate importance to the manufacturer and consumer.

In order to show the careful thought that our best rubber chemists are giving the work of the Conference, abstracts are given below from a letter received from one correspondent:—

"I suggest these topics:

"1. What subjects should be in well-balanced specifications for rubber articles?

"2. Has a chemical analysis any practical value as a means of determining the quality of vulcanized rubber?

"3. Of what value are physical tests for determining the quality of vulcanized rubber?

"4. How can the manufacturer and consumer best co-operate in the development of fair and reliable specifications?

"5. For what articles are specifications valuable, and for what articles are they impossible?"

Other correspondents have suggested such topics as:

6. Asbestos-rubber packings: their uses and their limitations.
7. Methods for "pre-determining" the life of rubber compounds.
8. Materials particularly well adapted for insulated wire compounds.
9. The value of tensile strength tests in the appraisement of raw rubber.
10. The influence exerted by lead fillers on vulcanization, and the "life" of a compound.
11. Physical and chemical methods for evaluating shoddies.
12. The value and disadvantages of asphaltums as fillers.
13. The applications of antimony sulphide in the manufacture of druggists' sundries.
14. Rational specifications for duck used in hose and belting.
15. Is it wise, or even proper, for a customer to specify both the raw materials and the physical properties of a manufactured article?
16. "Scientific Management" in rubber works.
17. Trade customs in the rubber industry.

These are but a few of the many topics which have been submitted, and it is sincerely hoped that the engineers and chemists who have specialized in the problems of the rubber industry will give the matter their earnest consideration.

Probably the first attempt which was made to bring rubber goods manufacturers in consultation with the consumer was the Navy Conference, which was held within the past year, and which brought out such a frank expression of opinion. It has frequently been noted that there is a tendency on the part of consumers to question the motives of the manufacturers, but experience has shown that the most progressive manufacturers are those who desire to co-operate to the greatest possible extent with the men who purchase their products.

The Executive Committee, which has been formed to act in an advisory capacity to the Conference consists of the following: E. S. Land, U. S. N., Washington, District of Columbia; D. A. Cutler, New York; Dr. Lothar Weber, Boston, Massachusetts; Dr. W. C. Geer, Akron, Ohio; Dr. S. P. Sharples, Boston, Massachusetts; Dr. Eugenio Dahne, Brazil; C. E. S. Baxendale, Federated Malay States; F. Crosbie-Roles, Ceylon; A. Staines Manders, London.

The president of the Conference is Henry C. Pearson.

Persons whose name, title and address are forwarded promptly to the Honorary Secretary will receive invitations to attend the Conference.

Details of the arrangements for the Conference meetings will be ready for distribution September first, and those desiring the same should apply by card or letter to Frederic Dannerth, Honorary Secretary, Third International Rubber Conference, Grand Central Palace, New York City.

Fifteen of the principal American railways will be represented at the Conference through their chief chemists and engineers of tests.

WHAT NEW YORK WILL SEE IN MALAYAN RUBBER.

Previous to the shipment of the 20,000 pounds of rubber to be comprised in the Malayan exhibit at New York, it was placed on view at the Masonic Hall, Kuala Lumpur. The exhibits were contained in 120 packing cases. Six qualities were shown—smoked and unsmoked sheet; fine, blanket, scrap and bark crepe.

The "Malay Mail" adds:

"Sungei Kapar was the biggest contributor with 3,000 pounds of rubber of every variety. They forwarded eight cases of block, and although it was more than an inch in thickness it was transparent. Manufacturers at previous exhibitions have paid little attention to specimens of block rubber, owing to their inability to determine whether it was pure rubber throughout, but it is safe to say Sungei Kapar's exhibit will do a great deal to destroy the prejudice.

The History of Synthetic Rubber

IN dealing with the history of synthetic rubber production, Dr. Fritz Frank, of Berlin, in a special communication to THE INDIA RUBBER WORLD, has recalled the various raw materials and chemical processes hitherto employed for that purpose. He remarks at the outset that his idea has been to make his statements intelligible to the non-professional reader, while the use of chemical and technical expressions could not be entirely avoided.

ISOPRENE.

As it is known, the basic material of synthetic rubber is, in the first place, a carbo-hydrate, isoprene, which was first obtained from rubber itself by Williams in 1860. Within the last three years it has been found that not only isoprene itself, but also its kindred carbo-hydrates, which have two double linkages, give the same or analogous reactions, and can therefore, by chemical and physical means, be transformed into rubber substances.

Bouchardat (in 1879) was probably the first to obtain from isoprene a body like rubber. Tilden was then, at a later date, the first to define the formula of the constitution of isoprene, being likewise the first to produce these carbo-hydrates from a basic material other than rubber. He obtained the desired result, by conducting oil of turpentine vapors through red-hot pipes, transforming these artificial products into a substance of the nature of rubber.

Other workers upon the above-named carbo-hydrate, which forms an extremely volatile and mobile substance (boiling at 38 degrees Cent.), were Gladziatzky, Ipatie v. Wittorf and a number of other noted chemists; those of more recent date including Kondakow, Euler, Blaise and Courtot. All these researches had, however, only purely scientific importance. Neither the above-named scientists, nor others unnamed, succeeded in obtaining real rubber from this carbo-hydrate and its homologues.

In consequence Tilden, the genial English scientist, declared on the occasion of the First International Rubber Exposition of 1908, in London, that the attempt to obtain rubber in this way would have to be finally abandoned. His expressions of that time must, in Dr. Frank's opinion, be regarded as having been justified; the results obtained by him and Williams not having been reproduced by any other scientists in subsequent experiments. Even Kondakow, who now claims to have really made rubber from butadiene carbo-hydrates, following up the work of Tilden, did not, in Dr. Frank's opinion, actually do so. According to the descriptions given, the preparations obtained by him displayed either too low or too high a stage of polymerization, too large a molecule being in the latter case formed by combination. His first product was therefore still soluble in alcohol, while his specially solidified material was no longer soluble in benzene, benzole or other rubber solvents.

RESEARCHES OF HARRIES AND HOFMANN.

Meanwhile, Harries, of Kiel, the German scientist, had been able to give a very probable interpretation of the formula of genuine rubber, characterizing the basic carbo-hydrate as dimethylcyclooctadiene. From his researches it appeared in the highest degree probable that success would yet attend the effort to build up rubber from isoprene, or from products of a similar nature to this carbo-hydrate.

While Harries was still engaged with his investigations the Bayer Factory of Elberfeld (one of the leading chemical establishments) had occupied itself with this question. It started from the principle that the matter should rest on a purely scientific basis, and had first of all produced by synthetic means chemically pure isoprene.

It was Hofmann (the director), in conjunction with Coutelle,

who was able to solve this question in the factory named. He employed a product of relatively low value, resulting from coal-tar distillation (*p*-kresole) as a basic material, transforming it into isoprene by a complicated process. From this material (after a large number of experiments with negative results) he finally succeeded in obtaining a rubber product, which he submitted in 1909 to one of the leading German rubber factories, where it was worked up into rubber goods.

This first artificial rubber, produced on a manufacturing scale, was made from isoprene, by exposing the latter for a long time in closed tubes to the influence of light, and later on to light and heat (by polymerization). The product thus obtained not only acted like rubber when being manipulated, but from a scientific point of view was distinctly recognizable as rubber. This process is patented, and is the basis of an extremely large number of patents applied for and granted in all countries, numbering upwards of 130, according to Dr. Frank's published lists.

ENGLISH RESEARCHES.

About the same time similar results were obtained by the independent researches of scientists residing in England. Of these, Dr. Frank refers to Heinemann, Wolteneck, Silberrad and others; adding that a certain credit is due to Heinemann, who built up his processes upon purely speculative work. Up to the present it is, however, not known which of them is capable of development upon an extensive technical scale.

Important features of the researches of the English and German scientists referred to, are the processes for obtaining an increased yield of isoprene from oil of turpentine: thereby considerably reducing the temperatures of reaction, as well as the pressures. These resulted through working in a space with diluted air, through the use of metals acting catalytically, through the dilution of the oil vapors exposed to the influences named, through indifferent gases and through other means. Of predominating importance are the processes elaborated by Harries, Gottlob, and Staudinger, based on conducting the vapors of oil of turpentine and other terpene carbo-hydrates (with or without dilution with indifferent gases, etc.) over a wire brought by electricity to a state of incandescence; the products of decomposition thus resulting being immediately caught up. For this purpose an "isoprene lamp" is used.

While this process is of considerable technical importance, it is, however, still founded upon a terpene carbo-hydrate as a basic material. The last-named substances are, like rubber, vegetable products, being thus, in a technical sense, only available to a limited extent.

It is different with processes based on the employment of acetylene, acetone, alcohol, starch and similar materials. But the yields obtained by these processes, Dr. Frank adds, are as yet so small that their technical prospects can only be regarded as limited. But, it is remarked, should the labors of Fernbach, Perkins and Ramsay succeed in causing the fermentation of starch and sugar in such a manner that amyl—and butyl—alcohol will be the main products, the matter would present a different aspect. Ehrlich of Breslau had already influenced fermentation in the direction of forming amyl-alcohol (German patent 177,174), but technical difficulties have prevented the carrying out of this scientifically important work.

OTHER SYNTHETIC PROCESSES.

Some other processes are referred to by Dr. Frank as having more favorable prospects from a technical standpoint, for the future production of artificial rubber. These are based on the

isolation of certain carbo-hydrates with two double linkages; on the one hand, from the gases obtained in the conversion of coal into coke, and on the other hand, from those which accompany petroleum, and are found in its first gaseous distillation of the same. He expresses the opinion, that if this principle can be carried out in conjunction with a sufficiently favorable yield, a source will have been discovered for the production of a certain, though probably limited, quantity of artificial rubber. The solution of the problem thus involved has already been accomplished from a scientific point of view.

Meanwhile it has been found possible, by a technically simple process, to transform into rubber these basic carbo-hydrates, which are extremely volatile, and constant in a limited degree. This result was accomplished with all the homologues of isoprene, hitherto obtained from natural products or accessible by means of synthetic processes, as well as with isoprene itself. Prominent in these researches in Germany were the Elberfeld Farbenfabriken, already referred to, as well as Professor Harries, the Badische Anilin und Soda Fabrik, and the Chemische Fabrik, formerly E. Schoring, Berlin.

In England Hodgkinson, Matthews and Strange, partly alone and partly in conjunction with Perkin, Weizmann and others, first succeeded in defining advantageous methods for carrying out the same work, their discoveries, besides having scientific value, being protected by patents. According to the Hodgkinson process, sodium amid, and by that of Matthews and Strange, alkaline and earthly metals, metallic nitrogen compounds and like substances are used. Rosins of various origins and other natural products have also been employed as basic materials.

GENERAL PRINCIPLES OF SYNTHETIC RUBBER.

Everything repeated again and again in the daily papers as to the technical production of artificial and synthetic rubber is, Dr. Frank remarks, nothing else than beating up froth. Rubber cannot be made from any desired material, but its production is connected with scientific principles. The latter are, in any case up to the present, based upon materials difficult of access, and under the most favorable circumstances to be prospectively obtained only in limited quantity.

The above, Dr. Frank remarks, is a rough outline of what has up to the present been done in this extensive field, although it has been impossible to present it in complete scientific form.

He makes the following deductions from his review of the synthetic rubber question:

SUMMARY.

1. The production of synthetic rubber has been successful in the scientific laboratory, and in a small scale in the factory.
2. The rubber obtained has partially the same properties as inferior natural rubbers.
3. The technical problem of the production of synthetic rubber has not begun to be solved, and will still have to face interminable difficulties.
4. Above all, no reliable proof has been adduced, which renders certain the competition of synthetic with plantation rubber.
5. An equality of price between the synthetic and the natural product is to be expected in years, but as to a parity of quality nothing can at present be said. Meanwhile, from a technical standpoint, the synthetic products are wholly of low value.

THE ENGLISH FINANCIAL WORLD AND SYNTHETIC RUBBER.

In commenting upon the latest developments in the synthetic rubber question, the London correspondent of the "Gummi-Zeitung" remarks that the directors of the new company could have done nothing more unskillful, than to mix up their future (which perhaps was favorable as to the acetone and fusel-oil patents) with the question of artificial rubber. The English press, it is added, was annoyed, not at the discovery itself, but at the manner in which the whole matter was brought upon the

scene. Attention is further called to the fact that the amount of capital alleged to have been subscribed up to July 6 was only £80,000, forming about one-sixth of the total of preference shares for which subscription had been invited.

It is further added that: "Enthusiastic England has not troubled about synthetic rubber, and has quietly gone upon its summer holidays, after having qualified the whole matter as a 'bluff.'"

"Had the matter taken the form of a national subscription for continuing the experiments, it would have met with abundant support from the thrifty but adventurous English. . . . But by extreme haste, and the premature disclosure of the discoveries of their scientists, the financial advisers of the syndicate have done much injury to the cause of future researches as to artificial rubber. . . . English rubber manufacturers have not been disturbed, but have been endeavoring to keep up with their orders."

THE NEW BRITISH SYNTHETIC RUBBER PROCESS.

AS having organized the committee of investigation, represented by Professor Perkin at the recent meeting of the Society of Chemical Industry, Messrs. Strange and Graham have addressed a letter to the "Financial Times." They remark that the starch used in the manufacture of synthetic rubber contains various substances as basic materials. Starch from maize costs on an average less than a penny (2 cents) per pound; only five operations being needed to convert it into rubber. The only supplementary materials required are: common salt, costing about 30s., or \$7.50 per ton; lime, which costs about the same; and coal, costing 15s., or \$3.75 per ton. Taking this basis of raw material cost, it is added, a pound of manufactured rubber would not cost more than 2 pence, or 4 cents. With such cheap and abundant raw materials, it is urged that there is a large margin for expenses of manufacture, if a shilling (24 cents) per pound, is taken as the cost price. It is, in fact, considered probable, that when experience will have perfected the manufacturing installations, about to be constructed on a large scale, the price will be established at between 4d. (8 cents), and 6d. (12 cents) per pound.

With reference to Professor Penkin's opinion that the selling price for several years would be 2s. 6d. (60 cents) per pound, it is remarked that with such a price, more than one-half of the world's rubber crop would leave no profit. This proportion would include all the wild rubber collected, including Pará. It is, therefore, considered probable that the first phase of the struggle which will inevitably take place, will be between plantation rubber and synthetic rubber.

Consequently, it is deduced, allowing for a rapid and steady increase in consumption, that several years will elapse, before synthetic rubber will notably affect the plantation industry.

A BELGIAN EXPERT'S OPINION.

In dealing with this subject, M. Gustave Van Den Kerckhove, of Brussels, the rubber expert, remarks that a general misconception prevails, to the effect that researches as to synthetic rubber only date from the time of the "boom" of 1910. On the contrary, as he remarks, they have extended over a much longer period. But, he adds, out of the numerous samples of artificial rubber he has examined during the last twenty years, he never found one meriting comparison with natural rubber.

In reply to the contention which has been put forward that synthetic indigo, camphor, silk, vanilla, musk and other substances have proved successful, he answers:

"In all these products, it is not necessary to incorporate elas-

ticity; while, in natural rubber, it is this 'nerve,' which is the life and vitality, and, in my opinion, cannot be obtained by synthesis.

"But, it may be urged, what about gutta-percha? It is true that there exists an excellent formula for synthetic gutta-percha, but, I again reply, that in gutta-percha this vitality is not required; in fact an elastic gutta-percha would no longer be regarded as good.

"This does not amount to saying that all these chemical researches have been fruitless. Absolutely not so. I render homage to all these zealous investigators, for many of these synthetic products find industrial applications in compounding."

Commenting upon recent sensational discoveries M. Van Den Kerckhove remarks that capitalists who have been led to think we are approaching the end of rubber planting and the ruin of the Amazon and the Congo, will soon find that this so-called "artificial rubber" is neither better nor worse than some hundreds of other patented rubbers.

He suggests that capitalists, to whom a synthetic rubber is submitted, should insist upon likewise receiving a vulcanized sample of the article; putting both samples in their safe for six months. At the end of this time, the writer remarks, nine times out of ten the crude synthetic rubber will have become hard and friable, while the vulcanized sample will, in all cases, have hardened and become brittle. These remarks apply, he adds, to synthetic rubber not containing an admixture of natural rubber.

In conclusion M. Van Den Kerckhove says: "Rubber planters need not be alarmed. . . . In spite of the interesting work being pursued in England, in Germany, in France, in the United States, in Italy, and even in Belgium, the synthesis of rubber is a mirage. . . . Seen from the distance it looks something, when approached it is nothing."

THE ALL-CEYLON EXHIBITION.

ONE of the most interesting events in the industrial history of Ceylon has been the "All-Ceylon" Exhibition at Colombo, held during the first week of July last, after months of laborious preparation. While tea, cocoa-nuts and other Ceylon products were fully represented, rubber occupied a leading and conspicuous position. The rubber exhibit was under the auspices of the Ceylon Agricultural Society, with the co-operation of the thirty or more local planters' associations.

THE RUBBER EXHIBIT.

Among the special features of the rubber exhibit was a large block of Lanadron rubber, which was exhibited at the Ceylon Rubber exhibition in 1906 and has since been exposed to light and air at the Peradeniya Museum. The placard was labelled

"WILL PLANTATION RUBBER KEEP?"

and the answer was supplied by the rubber itself, which appeared to be in good condition, while another sample was from Henaratgoda, from one of the original trees, which had been kept for 29 years. This, of course, had very little of the appearance of rubber about it, but it showed to what an extent rubber will keep. Some hard Pará rubber was also displayed; samples of biscuit, crepe and sheet rubber also being shown together with a biscuit of mud rubber. The results of slow drying were depicted by several pieces of rubber treated differently. Another specimen illustrated tacking produced by oxidation with potassium permanganate. Some *Ficus* rubber from the 1906 Exhibition and *Hevea* latex preserved by formalin and ammonia, were interesting; as were also the exhibits of *Castilloa*, *Ceara* and *Manihot Dichotoma*, crepe rubber, and some of the record yields from Henaratgoda.

DISEASES OF RUBBER PLANTS.

To the planter perhaps the most interesting portion of the exhibit was that relating to diseases. In this section were cut-

tings and branches showing the ravages of insects on rubber trees. Shot hole boring beetles, as shown, are also responsible for a good deal of damage; while there was also a good illustration of the "Nodule" disease in rubber trees. Carpenter bees are wretched pests and the tremendous holes bored by these insects were indicated in sections of trees, specimens of the male and female of the bees being shown. The huge cocoanut beetle and other insects interested those anxious to deal with these pests. There were also exhibited specimens of the old rubber prickers, and tapping knives; the latter being shown in their various stages up to the modern implement.

Various important official functions marked the course of the exhibition, such as the annual meeting of the Ceylon Agricultural Society, dealt with elsewhere. Ceylon and its officials, from the Governor downward, are to be congratulated on the success which has attended the "All-Ceylon" Exhibition.

RUBBER MACHINERY AWARDS.

Special interest attached to the exhibits of rubber machinery, for which the following prizes among others were awarded:

MACHINERY EXHIBITS.	EXHIBITORS AND PRIZES AWARDED.
David Bridge's Rubber Washing Mills.	Special Silver Medal, Colombo Commercial Co.
Michie-Golledge Rubber Machinery.	Gold Medals, Walker Sons & Co., Ltd.
Shaw's Creping and Rolling Machinery.	Silver Medal, Walker Sons & Co., Ltd.
Model Rubber Factory.	Gold Medal, Walker Sons & Co., Ltd.
R. Boby's Rolling and Creping Machinery.	Certificate of Honor, Eastern Produce Co., Ltd.
Siriwasa Smoke Drier.	Cup, Siriwasa Estate (Dr. W. A. de Silva).

The awards for rubber demonstrated the further success of Bridge's Improved Rubber Preparation Machinery, including the following prizes for rubber prepared with the Bridge machinery:

PAMBAGANA ESTATE, Cup and Gold Medal for thick blanket fine amber crepe, being the best rubber in the show.

TALAGALLA ESTATE, Silver Medal for scrap rubber in crepe form.

TROY ESTATE, Silver Medal for crepe rubber.

It will be noticed that the Pambagana Estate produced with Bridge machinery the best rubber in the exhibition.

AWARDS TO BRIDGE MACHINERY.

The direct and indirect honors lately obtained by David Bridge & Co., Ltd., of Castleton, Manchester, at the Colombo "All-Ceylon" Exhibition, follow up numerous previous successes achieved elsewhere. This company was awarded two "Grand Prix" diplomas at the 1910 Brussels International Exhibition, for rubber-preparation machinery and driving mechanism. It likewise obtained the First Prize Medal at the Coomassie Agricultural Show of 1908, for rubber-preparation machinery, as well as the Gold Medal for the same class of machinery at the Mexican Exhibition, held at the Crystal Palace in 1908. The same company also exhibited at the London Rubber Exhibitions of 1908 and 1911, but on the two last-named occasions it was distinctly understood that no awards would be granted.

CEYLON AGRICULTURAL SOCIETY AND THE NEW DIRECTOR OF AGRICULTURE.

One of the principal features of the recent "All-Ceylon" Exhibition at Colombo, was the annual meeting of the Ceylon Agricultural Society, held under the presidency of the Governor during the first days of the exhibition.

In the annual report, the services of Dr. J. C. Willis, the former organizing vice-president and director of the Ceylon Botanic Gardens, who lately retired from the British government service, to take up the directorship of the Rio de Janeiro Botanic Gardens, were appropriately referred to.

In the report, the work of the existing model and experimental gardens was fully described, as well as the agricultural shows held in various districts. The idea of holding an "All-Ceylon" exhibition had originated with Mr. Driberg, the secretary of the society, but had been brought into prominence through a resolution introduced at a meeting of the board held in April, 1911, by Mr. John Ferguson, who had then lately returned from England. Hence the close connection of the society with the development and carrying out of the plan for the exhibition.

MR. LYNE'S PAPER.

The chief interest of the occasion centered, however, in the paper read by Mr. R. N. Lyne, director of the new Agricultural Department of Ceylon.

Mr. Lyne has had considerable agricultural experience, both in England and in New Zealand, and was for some years Director of Agriculture in Zanzibar and Manager of the Government Plantations. Two years ago, on the recommendation of the Director of the Imperial Institute, he was lent, with the approval of the Foreign Office, to the Portuguese Government to organize a Department of Agriculture in the Province of Mozambique. Mr. Lyne is the author of numerous reports and papers on tropical agriculture, and is a member of the British Committee of the International Association of Tropical Agriculture.

DOMINANT MANURE FOR *HEVEA*.

In his opening remarks, Mr. Lyne appealed to the indulgence of the experienced rubber planters present, recognizing that it would be presumptuous, with his short experience of Ceylon, to address them on the cultivation of *Hevea*. Still he ventured to assert that though rubber planting has been established on a paying basis in Ceylon, there is very little known about the right treatment of the *Hevea* tree. To use his own words:

"Lawes and Gilbert pursued their patient researches for several decades, before venturing to pronounce nitrogen the dominant manure for wheat, or potash for clover. Wheat feeds in the top few inches of the soil and occupies the land but a few months. *Hevea* searches a vast area in comparison, and continues for three-fourths of a century, perhaps more. How long, then, are we to be allowed before pronouncing upon the dominant manure for *Hevea*? . . . There are many problems connected with the cultivation and tapping of rubber, which the new Department of Agriculture will, I hope, solve, or help to solve."

YIELD OF *HEVEA* WITHOUT MANURING.

Mr. Lyne further discussed the question of the rich return of a *Hevea* tree at Heneratgoda, giving eighteen pounds in one month's tapping, and yielding in that proportion, more or less, for six months or more in the year. In three and one-third years it yielded 275 pounds of rubber, though it had never been manured. His view was that in the tropics soil was of less importance than a proper balance of sun and rain. Thus eliminating the influences of individual peculiarity, manure and soil, the vigorous tree-growth is due to three other conditions—light, air and room. Manuring, he considered, might actually have done harm.

Dealing with the general aspects of the question, Mr. Lyne expressed the opinion that we are possibly devoting too much attention to the artificial side of rubber cultivation—manuring and methods of tapping, instead of devoting our energies to removing obstacles from the path of nature. He added that each individual tree should be given full play for the utmost exercise of its functions.

AGRICULTURAL EDUCATION.

Among the objects to which the new department will be called upon to devote its attention, is the question of the agricultural education of the native population of Ceylon, in line with the efforts being made in other parts of the British Empire. In his

opinion the material available in Ceylon compares very favorably with that of the other countries within his ken.

According to its report, the society employs nine instructors, seven of whom are attached to the Singhalese districts and two to the Tamil sections.

PARA VS. PLANTATION RUBBER.

ONE of the most salient features of the London market of late has been the strong position of Brazilian rubber, and its higher value compared with plantation grades. During the first three weeks of August, the London price of fine Pará ranged from 4s. 10½d. to 5s. 2d., closing at the latter figure on the 21st. That of pale crepe, on basis of first latex, varied between 4s. 9¼d., and 4s. 11d., reaching the high point on the 21st. Both kinds started at 4s. 10½d. on August 1, winding up on the 21st with a higher price for Pará of 3d. per pound.

It is remarked that this difference in price will bring plantation rubber more prominently under the notice of consumers, hitherto prejudiced in favor of the Brazilian article.

That this development has resulted is practically attributed to the fact that Brazilian stocks are held in few hands.

According to the report of the United States consul at Pará, quoted elsewhere, arrangements have been definitely concluded by the Bank of Brazil to facilitate the disposal of the syndicate stock to *bona fide* manufacturers, with a view to preventing its manipulation by dealers. Sales and shipments are to be made to the customers direct from Pará.

The Pará holdings of the syndicate, it will be remembered, were 2,240 tons on July 1. This quantity had been reduced by the middle of August to 1,200 tons. It is understood that a large part of the sales were to American dealers and consumers at full rates.

Another element of strength in the market for Brazilian rubber has been the continued deficiency in visible supply, as compared with last year. On July 1 the returns stood: 1911, 10,950 tons; 1912, 6,370 tons; the decrease being thus 4,580 tons. The figures for August 1 were: 1911, 9,510 tons; 1912, 5,400 tons, the diminution in visible supply being thus 4,110 tons, nearly as much as on July 1.

WANT BALATA BELTING.

A prominent British firm with offices in the Far East has written to one of the commercial agents of the Department of Commerce and Labor, Washington, District of Columbia—consular report No. 9205—that it would like to get in touch with a first-class manufacturer of balata belting. If quality and price are right, this firm feels certain that a good business can be done in this line.

MILITARY MOTOR TRUCKS GROWING IN FAVOR.

Not the least interesting feature of the mimic warfare that was waged around New York during the early part of August—when the Red Army was seeking to swoop down upon the city and destroy it, and the Blue Army was valiantly defending the homes and hearthstones of 5,000,000 people—was the result of the experiments in the use of motor trucks in army manoeuvres. A large number of them were used by the invading army, and in the general opinion of army men interested in the subject, the motor truck is a vastly more advantageous means of conveying military equipment than the time-honored wagon train drawn by the army mule. Two different styles of trucks were used—one a 3-ton truck and the other a 1½-ton truck. They were much more compact than the mule train, as they occupied only one-third of the space, and consequently were only one-third as much exposed when in motion to the attack of the enemy. Moreover, while the mules had to be supplied with provender at every camp-site, the motor trucks could carry enough gasoline for a ten-days' march. The army mule is evidently doomed.

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

THE B. F. Goodrich Co. is constructing a new office immediately west of the present office building, which will run from the present office building to the east side of the street just opposite the American Hard Rubber Co. The construction will be similar to that of the present office building, although it will be one story higher, and the present office building will be built one story higher, so that the capacity for office room will be at least doubled. The new structure provides for special dining rooms, and also for general dining rooms for office employees. Private and general offices are provided.

H. E. Raymond, general sales manager of the consolidation, has just returned from Europe, and it is believed that the new officials are about to consolidate the office and sales force of the company. Mr. Raymond says that in the reorganization no efficient men will be dropped, as the company's business has increased considerably since consolidation, and that all their office force and more are needed for their present work. The large addition to the Diamond branch of this company is nearing completion.

Mr. H. F. Mason, vice-president of the Goodrich Company, who last winter donated Elizabeth Park to the city of Akron, together with a fund for maintaining the same, has donated to the park \$2,000 for a small bridge over the Little Cuyahoga River. Mr. Mason has at heart the welfare of the city of Akron, as evidenced by his many benefactions, and he has offered the city \$3,000 a year to employ nurses for medical inspection and care of school children, if the Board of Education will provide physicians to direct them. This amount should employ three or four visiting nurses. All Mr. Mason asks is that qualified physicians shall visit the different schools in the city, and keep in touch with the children, and report those who need assistance and provide for them, if the parents are not able to do so. This should increase the health of the children of Akron and lessen the chance for the spread of contagious diseases. With the hearty coöperation of the teaching force, this would greatly help the health of the school children of Akron. Several members of the Board of Education have spoken heartily in favor of the plan, and if funds can be provided for the payment of physicians, the Board of Education will be pleased to accept Mr. Mason's offer.

The combined plants are very busy and the volume of this year's business shows a large increase over that of last year.

B. G. Work, general manager, who has been in Europe for several weeks, is expected home shortly. Irvin Renner and Walton Fenton, who have been in Colombes, France, helping to oversee the construction and equipment of that plant, have returned home. R. N. Baxter, assistant advertising manager, has resigned his position with this company, and has accepted a position with The System Magazine Co.

* * *

A. Staines Manders, of The International Rubber Exposition, paid a visit to Akron and was courteously received by the Akron manufacturers, and the Chamber of Commerce. Akron industries will be well represented at the Exposition, many applying for space. The Akron Chamber of Commerce have applied for, and been granted, an Akron Day, when Akron's interests will be especially emphasized. Most everybody expects to go so that a good attendance seems assured.

* * *

The Goodyear Tire and Rubber Co., by the installation of 53 fountains, through which is continually pumped a supply of fresh, cool, spring water, believes that it has solved the problem of summer drinking water supply for its workmen. The contract has been let recently to install a circulating system of galvanized iron pipes to all parts of the factory, and at convenient spots throughout the plant, where the fountains will be located.

The pipes will be covered with cork 1½ inches thick, to insure a reasonable amount of coolness for the water. If this is not successful a refrigerating plant will be erected. This does away with the old system of water tubs and pails, carried or wheeled from hydrants to the various parts of the factory.

* * *

Papers for the incorporation of The Dutch Rubber Co., of Akron, were filed at Columbus, August 14. The capitalization is \$1,250,000. The purpose of the company is extensive, covering the selling, handling, manufacturing and reclaiming all kinds of rubber goods. The company, it is claimed at the present time, will take over the Royal Rubber Co., which will be used as the basis on which to build a large concern and increase the output. This company is being organized in the office of Grand & Schnee, and the officers of the company will be elected later.

* * *

The American Tire and Rubber Co. has recently installed an auto repair department.

* * *

The Goodyear Tire and Rubber Co. constructed a large balloon from their fabric, which was entered in the balloon contest at Kansas City. The balloon behaved admirably in its flight, and although it did not win the contest, the promoters were well pleased with their initial attempt.

It is reported by Lamonte Nollin that this company expects to place a system of stations of the Marconi Wireless Co., which will carry messages around the globe, and that in less than 18 minutes. They expect to complete this system in two years. The construction work is being pushed forward rapidly. The line will consist of 11,500 K.W. duplex stations, which will be located at London, New York, San Francisco, Honolulu, Manila, Singapore, Bangalore, Pretoria, Aden and Cairo. This line will handle only long-distance messages. It may do an international business competing with the Oceanic cable companies, which are now the only means of quick communication between foreign countries. These stations will be "tuned" so they will not interfere with the world's commerce. The wireless company will coöperate with the land companies, where it is possible. The different stations will cost about a half million each, and will be under a running expense of \$2,000 per month. Each plant will consist of 12 steel towers, each 300 feet high, arranged in two rows 1,500 feet wide. Each plant will face in the direction it is receiving from, or sending to. Two of these plants will constitute a station. One will be used for sending and the other for receiving. The company has placed over its main office building the wireless apparatus used on the ill-fated balloon "Akron," which has been sending and receiving messages from Detroit and other branches.

* * *

H. S. Firestone, of The Firestone Tire and Rubber Co., is spending his vacation in Northern Michigan.

To secure more room for tire output and office room, the Firestone Company is building two wings to its present plant of the same height and construction as the new plant. The new north wing will be extended 60 x 125 feet, and the new east wing 60 x 200 feet. The Firestone Company is also building a new employment office near Main street.

* * *

The Portage Rubber Co. is erecting an addition to its drying room, 26 x 57 feet, and a two-story brick building 30 x 96 feet; the first floor to be used as a machine room and a shipping room.

* * *

W. H. Bell was transferred from the position of manager of the Pneumatic Department of The Firestone Company to the position of manager of their San Francisco branch.

* * *

S. S. Miller has resigned as superintendent of The Buckeye Tire and Rubber Co. and T. C. Marshall, the assistant superintendent, has been appointed to succeed him.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

BUSINESS is unevenly divided. Orders come in for some lines, while others are in the midst of the midsummer doldrums. Possibly by the time this letter is in print things may have livened up a little, but now, ten days ahead of publication, quietude prevails, and many members of the trade are away on vacations.

There is an exception to the prevailing lassitude in the rubber clothing business, which has not yet caught up to demand—a state of affairs which has been notable for the last two years. A salesman for a leading garment manufacturer, who started out about the fifteenth of August, says that his mill cannot start on any order, not now on their books, before the middle or last of October, so crowded is the factory. Another clothing manufacturer, whose goods are known both here and abroad, tells your correspondent that deliveries lag because of the difficulty in securing the fabrics, practically every mill being months behind in its orders.

There was a run on tan rubber-faced garments a year or two ago, and the mills couldn't make them fast enough to supply the demand. Today you can hardly give them away, in most sections of the country. And the reason is not far to seek. They are as objectionable as the oil-skin slickers. Hot, close, impervious to air, they are uncomfortable to the wearer, and they shed water to such an extent that the wearer's neighbors in the street cars or in the stores, or even the passersby in the streets, are side-swiped, and involuntarily semi-drenched.

But today, the call for waterproof over-garments of fine cloths, rubberized or cravenetted, is ahead of production, and manufacturers are correspondingly happy.

Of course the tire business is good. It's bound to be, as long as people "mote." At the factory of a leading tire, the manager of sales informed THE INDIA RUBBER WORLD representative that every automobile in the country counts as \$100 trade to the tire industry. This is by no means an over-estimate, for while the careful user of small tires may spend hardly half or even quarter that sum, the users of large tires on the heavy cars will greatly exceed this average in outlay.

The rubber footwear factories, as is their custom, shut down the first two weeks of August, this generally being considered necessary for inventory, clean-up, changes in construction and repairs, and also because of the demands of their working forces for a vacation. The Converse Rubber Shoe Co. and the Apsley Rubber Co., however, did not shut down. The Apsley company has had no regular shut-down of more than a day or two for several years, making a boast that there are always enough orders ahead to keep the force busy right along through the year.

A matter, which is becoming rather serious, is being considered by the rubber footwear producers. That is the great variety of styles of leather shoes made by the leading manufacturers. These are being multiplied each season, and there are so many shapes of toes, and heights of heels which standard styles of rubbers cannot fit, the special shapes are demanded. The designers are endeavoring to evolve two or three generic near-fit shapes, not always with the greatest success, and as it costs several hundred dollars to put in a set of lasts for a special shape, the problem is one of considerable importance. A leading rubber footwear man states that 80 per cent. of the demand is for the regular standard shapes, about eight or ten in number, and that the other 20 per cent. of the call is divided among at least twenty different shapes now made, and even these are not sufficient to supply all the demands of shoe retailers.

* * *

Some months ago your correspondent mentioned the fact that Walter R. Macdonald, who accompanied Colonel S. P. Colt abroad, would later be sent to the Far East in the interests of the United States Rubber Co. Last month a letter was received from

Mr. Macdonald from Singapore. The letter bore the heading, "American Consular Service," and stated that while the regular consul is away on sick leave, "Mack" has been appointed to hold his chair down till he returns. The letter says: "This is a great country; hot, hot as the devil is wicked, but just the place to raise plantation rubber, and the people are improving the opportunity. There isn't the shadow of a doubt in the minds of thinking people that the plantation rubber of the Far East is destined to revolutionize the rubber business of the entire world. It is simply astounding to see the way it is going ahead by leaps and bounds, as the figures come in showing gains each year over the previous one." There you have it, direct from a practical rubber man, right on the spot, and an "acting" consul.

* * *

Captain Francis H. Appleton, Sergeant Francis H. Appleton, Jr., and Cadet Francis H. Appleton, third, and the rest of the Ancient and Honorable Artillery Company of Boston have arrived home from their visit to London, and their confab and hob-nob with King George V., and other notables of Great Britain, and their sight-seeing trip through Europe. The Appletons are well bronzed and are enthusiastic in praise of their trip, but are back again at their desks in their office overlooking the big South Terminal Station, and giving strict attention to the demands of their customers, just as if they had never dined with royalty, and had their pictures taken, elbow-to-elbow, with His Majesty. Some account of this trip is given more fully on another page.

* * *

The Hood Rubber Co. has made an important move during the month. The new concrete Administration Building in front of the factory at East Watertown having been completed, a large proportion of the business of the company will hereafter be transacted there. The purchasing, bookkeeping and correspondence departments, as well as the footwear sample and sales-rooms, have been moved to this new building at East Watertown. The company will retain a portion of the present premises on Bedford street in Boston, and Treasurer A. N. Hood will continue to have his office there, but the larger part of the premises will be sub-let for some other kind of business. The present handsome little domed sample room will be retained, for there may be buyers who will consider it a hardship to spend a quarter hour to go to the factory, either by automobile or by way of the speedy Cambridge subway.

And another change is noted in this connection; namely, the taking over of the Shawmut Tire Co. by the Hood Rubber Co. As is well known in the trade, these two companies were practically identical, and all the Shawmut tires are made at the Hood factory. Hereafter the whole business of making, selling, billing and collecting will be assumed by the Hood Rubber Co., all the business in this connection having its headquarters at the Watertown factory and Administration Building.

* * *

Much of the personal news of this month is of the vacation flavor. For instance:

E. I. Aldrich, general selling agent of the Hood Rubber Co., following his usual custom, spent the first half of August at Northfield, where his family remains during the entire summer, while Mr. Aldrich makes week-end visits. He says the summer conferences and meetings have been unusually interesting this year.

R. L. Chipman, of George A. Alden Co., vacationized at North Scituate, returning to business about the 20th, well browned up, but without putting an extra pound of flesh on his bones.

Philip E. Young, of the Acushnet Process Co., was fishing "Way down in Maine" when last heard from.

Robert L. Rice, of the Hood Rubber Co., with his family, is rustivating somewhere in the wilds of Nova Scotia.

F. H. Jones, of the Tyer Rubber Co., is spending his vacation in Maine.

E. B. Kelley, of the Mechanical Fabric Co. (one of the "Kelley Twins" of the Rubber Club of America), has just returned from a trip through Europe.

Thomas F. Kimball, advertising manager of the Hood Rubber Co., is spending a somewhat prolonged vacation in the Adirondacks. Tom has had a strenuous year, and his health has been somewhat undermined, and hence the extended respite from business.

A. D. Thornton, of the Canadian Rubber Co., Montreal, is summering at Kennebunk Beach, Maine, and takes an occasional run up to this city.

R. B. Woodbury, of the Hood Rubber Co. purchasing department, started Wednesday, August 21, on a trip across the Continent. He will sail from a Pacific port for the Far East, Singapore being his destination, where Mr. Woodbury will study the plantation-rubber situation at close range. Several friends were at the station to wish them *bon voyage* on their long journey.

George F. Switzer, traveling agent of the Boston Belting Co., started a week or so ago on a trip to the Pacific Coast, where he will call on the selling agencies of this company at San Francisco, Portland and other points, as well as on the many customers of the concern in the Far West.

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

AS a result of the fire which destroyed its leased storehouse, several months ago, the Revere Rubber Co., a subsidiary of the United States Tire Co., whose plant is located on Valley street, finds itself badly cramped for storage space. Work is being rushed as fast as contractors can rush it on the big four-story brick building which was started several weeks ago.

In the meantime the company is using small wooden buildings and other structures in the vicinity of the works. The plant itself is being rushed to the limit of its capacity, night and day forces being employed all of the time.

The Revere company also has a rather unique feature of its activities, a baseball club made up of employees. The company allows this team to use the firm name and encourages the sport. The team plays those made up of workers from various industries about the city of Providence.

* * *

The American Wringer Co.'s plant at Woonsocket has resumed operations in full, after a shut down for the purpose of installing new equipment and machinery. An engine, two new boilers and a generator have been put into the power plant and other improvements have been made.

* * *

During the early part of August rubber coats began to disappear rapidly from a number of retail stores in Providence. Proprietors began to watch closely. On August 12 Edward Handy, 22, of New York City, was arrested by two detectives, and was fined \$25 and costs in the Sixth District Court, for the larceny of two coats from the Hope Rubber Co. Whether he was one of a band operating on rubber goods as a special line of theft, or was working alone, was not found out.

* * *

Business at the plant of the Phillips Insulated Works at Pawtucket is so good that the company is pressed for room and has rushed work on the construction of a new office building. Moving the office force from their present location in the main plant to the new structure, the outside of which is already

finished, will give additional space for machinery. The work will be finished within a few months.

* * *

Henry J. Doughty, formerly well known as a rubber manufacturer here, is one of the moving spirits in the Progressive Party here. As a result of the work of the party leaders, former President Roosevelt opened his campaign here with a speech in Infantry Hall.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

CONDITIONS in the rubber trade have never been better, judging by financial standards. Strong call for almost all lines of rubber goods is reported, and manufacturers and dealers in most cases report business up to full capacity.

The tire business continues to overshadow other branches of the rubber business in Chicago, as in most centers, and despite the big spring months, the late summer market remains almost unimpaired, and showing a strong increase over the summer season of a year ago.

Earnings and dividends are the financial gauge of the rubber tire business.

The Republic Rubber Co. has declared its usual quarterly dividend of $2\frac{1}{4}$ per cent. on the stock, payable to holders of record August 6. The company has also voted to increase its capital stock from \$4,000,000 to \$10,000,000.

The B. F. Goodrich Co. has declared an initial dividend of 1 per cent. on its common stock, which was made payable August 15 to holders of record August 5.

The Swinehart Tire & Rubber Co. has declared a quarterly dividend of $1\frac{1}{2}$ per cent. on its capital stock. This is a reduction of $\frac{1}{2}$ per cent. for the quarter, the rate being reduced from 8 per cent. to 6 per cent. per annum.

* * *

Few persons have an adequate idea of the growing magnitude of the rubber business in this country. The gross earnings of three companies for the last fiscal year totalled \$108,000,000. These three companies' principal product is rubber tires. Four years ago their gross earnings were considerably less than \$45,000,000. Rubber Goods, Goodyear and Goodrich (including the Diamond) constitute this notable trio. And to these the United States Rubber Co. and the total figure for gross earnings reaches the astounding figure of more than \$157,000,000.

The comparison of earnings and financial differences is interesting:

	Rubber Goods.	Goodyear.	Goodrich.
Gross earnings latest fiscal yr....	\$34,587,269	\$25,029,162	\$48,528,112
Four-year average.....	28,474,286	13,032,159	37,249,152
Net latest fiscal year.....	3,500,997	1,087,632	7,805,312
Four-year average.....	2,494,449	1,118,990	6,716,904
Capital stock.....	27,293,100	10,000,000	90,000,000
Per cent. gross (to stock).....	126	250	54
Working capital.....	8,698,472	7,466,258	19,031,602
Patents, etc.....	1,570,577	.....	57,000,000

Although some of the above figures are unofficial, the table well represents the financial status of these companies, and shows the Goodyear to have turned over its capital two and one-half times in a year, while the Rubber Goods Co. made a turn of one and one-quarter times, and the Goodrich company one-half.

The Goodyear Tire & Rubber Co. shows gross sales for seven months ending May 31 this year to be \$12,477,037, as compared with \$13,262,266 for the entire fiscal year ending October 31, 1911. The total net assets of the company, after liberal allowance for depreciation is made, amount to \$10,032,644, equivalent to 200.6 per cent. on the entire issue of preferred stock. After January 1, 1915, the company will retire \$250,000 preferred stock on or

before October 1 of that year and not less than \$250,000 each year ending October 31 thereafter, until the whole issue has been retired.

* * *

The Republic solid staggard electric tire is creating considerable interest in Chicago. The studs on the tread are so arranged that the intervals between the studs in one row are exactly opposite the studs of the adjoining row. According to J. W. Maguire, manager of the Chicago branch, this gives a smooth continuous cushion tread, and the deep depression between the rows gives added elasticity to the tire. Each of the studs is said to take a distinct and individual grip on the pavement, thereby making motoring on wet paving much safer.

* * *

General Manager F. D. Mayer, of the Essenkay Co., has announced that a long-time lease had been acquired on a location in the central manufacturing district of Chicago, giving the concern a very desirable establishment to keep pace with its rush of orders. "Notwithstanding the fact that the equipment forces have been doubled several times on account of the wonderful development of our business," said Mr. Mayer, "we have been obliged to maintain night forces for several weeks and are still behind in our orders. We searched for a modern three-story fireproof building to increase our manufacturing facilities, and found it in the central district, and it is an ideal location."

* * *

The Department of Justice is investigating a report that there is a fire apparatus trust in defiance of the Sherman law, and federal sleuths in Chicago and elsewhere are at work on the matter. United States Attorney James Wilkerson will institute dissolution suits in case the department bares any evidence upholding the contention that a trust exists. Many complaints have been received at Washington, it is said. Charles DeWoody, head of the federal bureau in Chicago, will not confirm the report that his men are investigating the fire apparatus makers and their methods.

* * *

Evanston—where Northwestern University is located—has a "pussyfoot" police force. As a result of recent bold burglaries in that exclusive suburb all officers have been instructed to don brogans with rubber soles. The aristocratic residence community is no longer awakened at night by the heavy thuds of the patrolmen on their beats, nor the midnight prowlers apprised of the policeman's proximity. Only the snoring of the corner "cop" now disturbs the little city, and that is reduced to a minimum by frequent absences from the corner.

SOME TRENTON NOTES.

The Ajax-Grieb Rubber Co. has awarded contracts, calling for the erection of a three-story brick building addition to the concern's plant on Olden avenue, at a cost of \$21,000. The building is to be 60 x 200 feet, according to plans prepared by Architect W. W. Slack, of this city. Work of building will be started at once. The new building will be used for a storehouse for tires and general rubber goods.

* * *

C. Harry Baker, stockholder in the Empire Rubber Manufacturing Co., and General C. Edward Murray, treasurer of the company, finished second and third respectively in the clay target shooting match at the recent outing and field day of the employes of the Empire Rubber, Crescent Belting and Packing Co., and Empire Tire Co., at the Inter-State Fair grounds. The outing was one of the biggest events of the kind conducted this year. A big program of athletic events was a feature of the affair. General Murray, who is immensely popular with his employes, presided at the dinner.

THE RUBBER TRADE IN SAN FRANCISCO.

(By a Resident Correspondent.)

THE rubber merchants report, with some signs of satisfaction, that business has improved materially during the past month, and they are now looking forward to a prosperous fall business. Indeed, the long-looked-for era of prosperity seems more certainly near at hand at the present time than at any time during the past three years; and business now is much better than it was at this time last year or the year before. There is more commercial activity in and about San Francisco; and all along the coast industries are enjoying a period of activity which far exceeds the general business of last year. The result is that the merchants engaged in the rubber industry are coming in for a fair amount of the general revival of prosperity, and if all goes well there will be no cessation from now on until the gigantic activities in connection with the Panama-Pacific Exposition cause things to boom in this and the other cities of the San Francisco bay.

* * *

The Goodyear Tire & Rubber Co. has taken up its permanent quarters in its new home at Van Ness avenue and Sutter street, and this is undoubtedly one of the best equipped buildings of its kind in the state. The building is 125 by 176 feet, being two stories in height, with basement. It is finished in "Mission" style, and in a light buff effect. The first floor is devoted to the offices, and these are finished in solid white oak, and all of the color effect is based upon this setting. The general offices are separated from the head offices by a simple counter of oak, and are raised from the elevation of the floor some six or eight inches. The prominent feature of the main floor is the big stairway to the right of the main entrance. It is made of solid stone, finished in an attractive Venetian design, with stairs 15 feet wide. Along the balustrade, and at the landing, the severity of the gray stone is relieved by the green of huge palms and rubber plants.

The second floor is occupied by the coast organization of the Goodyear company, which has the supervision of all of the branches tributary to San Francisco. The finish here is much as the general plan of the main floor. The entire building is equipped with the "Eye Comfort" lighting system, which throws the light upward to the ceiling, where it is so reflected and diffused that no shadows are cast. The rear of the first floor forms the service department, and is complete in every detail, while the same space overhead gives 14,000 square feet of storage room for equipment. The completion of the new home was fittingly celebrated in a big house warming. Decorators took charge of the building, and it had a true holiday appearance, and all of the friends and patrons of the firm were the guests. An excellent vaudeville programme was offered for the occasion, together with moving picture scenes of some recent thrilling automobile races. Dancing occupied the remainder of the evening.

* * *

C. S. Richardson, manager of the Punctureless Tire Co., is a firm believer in the efficacy of prepared tire filler. He has a tire filler which he claims is easily molded and perfectly pliable, with the tough consistency of rubber, yet not porous or sponge-like; nor is it soft and gummy. Neither extreme heat nor cold affects it.

* * *

F. H. Hirsch, with the Pennsylvania Rubber Co., is now traveling through the Northwest, in the interests of the company. This firm is getting out a large number of attractive posters on which they are featuring the Vacuum-Cup Girl, in praise of their vacuum-cup tires. The company reports good business.

* * *

The Goodyear Rubber Co. states that its mechanical business is improving, and going consistently ahead of last year. Condi-

tions are much better in the Northwest. In Oregon the mills are now running nearly at full capacity, and this time last year they were not running a third of their capacity, so that this alone is making considerable difference in the business.

Mat. Burns, with the Goodyear company, is getting out a new tire, at their factory, which is attracting considerable attention, owing to its non-puncturable qualities.

* * *

David Dorward, Jr., formerly with the Union Oil Company, is now with the General Pipe Line Co., in the capacity of constructing engineer. The rubber houses are interested in this company at the present time, owing to the fact that it is preparing to build many miles of pipe.

Another avenue of business for the local rubber houses has been opened by the Spreckels Steamship Co., which has again started three large steamships on the Australia route. This line was laid off for eight years.

* * *

Ed. Garrett, formerly with the Gorham Rubber Co., and now of the Garrett Callaghan Co., has been in the mountains on a shooting trip for six weeks, and intends to stay there until the snow drives him home.

Mr. Cooley, formerly with the Diamond Rubber Co., has accepted a position with the Gorham-Revere Rubber Co., and is now making the Arizona and Nevada territory.

Jos. Francisco, W. Horn and A. Howeth, of the Gorham-Revere Rubber Co., are all up in the mountains on a deer hunt.

Mr. Oliver, who was formerly superintendent of the American Rubber Manufacturing Co., has recently started in business for himself, and has opened an automobile tire repairing establishment in Oakland, California.

Al. Branton, with the Gorham-Revere Rubber Co., has been selected on the Alameda Boat Club crew, which will go to Honolulu, to attend competitive meets.

Mr. Pough, formerly purchasing agent for the Goodyear Rubber Co., has severed connection with the company, and has gone into the general merchandise business.

The Western Belting & Hose Co., 518 Mission street, reports great success with its Lightning Hose Rack. This device is selling not only locally, but is going extensively into the eastern market as well.

DR. BAKELAND ON OUR PATENT SYSTEM.

"United States Patent System Leaflet No. 3," issued by the American Institute of Chemical Engineers, on "The Abuses of Our Patent System," by Dr. L. H. Baekeland, inventor of "Bakelite," is an excellent exposition of the very serious defects in our present patent system, and a plea for a revision of present methods. Here is a paragraph taken from the leaflet, which gives an idea of the author's opinion of the legal processes in patent cases at the present time:

"Woe, indeed, to the poor inventor who tries to enforce his rights against wealthy infringers, aided by skilful lawyers. His well engraved United States patent parchment may then become his certificate of entrance to the poor house, or to the lunatic asylum. All this tends to discourage invention by independent individuals and paralyzes the stimulation of invention our Constitution intended to promote by the patent law.

"In other words, although the patent law of the United States is about as fine a piece of good progressive legislation as was ever conceived, its enforcement in the United States courts is subject to so many uncertainties, complications, delays, and to such horrible expenses, that the man with limited resources is at an inexpressible disadvantage.

"If any one asks my advice, whether he should take out a patent or not, my invariable answer is: 'Can you find the money to defend your right in court? If not, do not waste any time or money on a patent.'"

A POPULAR MAGAZINE'S VIEW OF A RUBBER INVESTMENT.

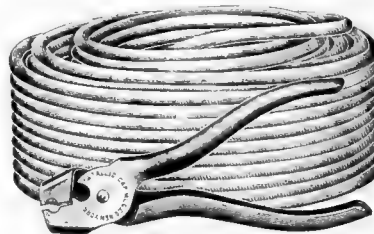
Quite a number of the popular magazines have introduced a financial department, where they give inquiring readers information, on request, regarding investments. In a recent number of "Lippincott's" the financial expert answers the question: "What is your opinion of the preferred stock of The B. F. Goodrich Co?" as follows. As it is a concise presentation of the case we reprint his reply:

"The B. F. Goodrich Co. was organized under the laws of New York on May 2, 1912, and has acquired nearly all of the property and assets of the Ohio corporation of the same name, and of the Diamond Rubber Co., an Ohio corporation. The balance sheet and statement of earnings vouched for by Messrs. Deloitte, Plender, Griffiths & Co., chartered accountants, shows real estate buildings, plant, machinery, good will and patents worth \$72,325,188.42, and current assets of \$26,457,507.57. The total assets of the company are \$100,877,604.46. The current liabilities of the company representing the amount of debt outstanding against these assets are \$7,425,704.94. The liabilities of the company are nearly all capital stock of which there is \$30,000,000 of preferred and \$60,000,000 of common outstanding. Including certain miscellaneous reserves in the liabilities the company has \$62,200,000 of assets in excess of its preferred stock. The gross sales of the companies acquired by the Goodrich company have increased from \$22,580,107.63 in 1908, to \$48,528,112.01 in 1911, and during the same period the profits have increased from \$4,615,098.42 to \$7,805,312.48. The preferred stock calls for 7 per cent. cumulative dividends and on the basis of the profits of 1911 the company has earned nearly four times its preferred dividend. The charter and by-laws of the company provide that no mortgage can be placed upon the company's property, nor can the amount of the preferred stock be increased without the consent of three-fourths in interest of each class of the outstanding stock of the company, both preferred and common, and provides, also, that beginning with July 1, 1914, and each and every year thereafter (until all of the preferred stock shall have been redeemed) the company shall annually acquire by redemption or purchase at not to exceed \$125 per share, plus accrued dividends, at least 3 per cent. of the largest amount in par value of said preferred stock that shall at any time be issued and outstanding. Of its class this preferred stock is unexcelled. In assets, profits and trade position the company is exceptionally strong."

SAFETY FUSE.

It cannot be said that safety fuse is especially new. As a matter of fact, it was first invented by an Englishman, Bickford by name, 80 years ago, and patented by him at that time, but since that distant day a great many improvements have been introduced. The manufacture of safety fuse was established in the

THE ENSIGN-BICKFORD CO.



SIMSBURY, CONN.

United States in 1836, in Granby, Connecticut, and soon afterwards moved to Simsbury, Connecticut, where it is still carried on by The Ensign-Bickford Company, successors of the original inventor. They make a variety of safety fuses to meet different conditions, their fuse for use under damp

conditions, and particularly where the fuse is to go under water, being rendered waterproof by the use of a gutta-percha covering. The gutta-percha is also, in some of these varieties, rendered still further waterproof by an application of tape so varnished as to be impervious to air and moisture. This keeps the gutta-percha from oxidizing and considerably increases its life and usefulness.

The India Rubber Trade in Great Britain.

By Our Regular Correspondent.

IN June the daily and illustrated press had a good deal to say on the subject of synthetic rubber; in July equal prominence was accorded to another and more regrettable phase of the rubber industry, viz., the Putumayo atrocities which, as recorded in the government Blue Book, have stirred

THE PERUVIAN AMAZON CO.

the public mind to a degree comparable with what obtained in the case of the Bulgarian atrocities of thirty odd years ago. The main facts are, of course, well known and need no repetition, but I may be allowed a word or two of comment on the situation. Although the names of the English members of the board of the Peruvian Amazon Co. (now in voluntary liquidation) have not yet been mentioned in Parliament there is, of course, no secret about them, and several papers have already given them prominence. As far as the responsibility of Mr. Gubbins, Mr. Read and Sir John Lister-Kaye is concerned, anyone who knows anything about the average limited company of London will readily believe that these gentlemen knew very little about the conduct of the business, and that they were entirely in the hands of their Spanish confreres. As, however, their degree of responsibility may be a matter for judicial enquiry, I will say no more, except to contradict the absurd statement made in the German press that they are naturalized Peruvians.

In conversation with an English merchant, who acts as vice-consul for Peru in one of our large cities, I learned that he had had rather a troublous time lately. He put the case in the best way he could for his much abused country, and I give one or two of the points he made. It was very unfair, he said, to level abuse at Peruvian rubber merchants generally, as the great bulk of them carried on their business in a reputable manner; though he admitted that the methods of barter and prevalent custom of getting the collectors into debt with the merchants, were not such as would commend themselves to British trade unionists. With regard to the alleged inactivity of the government in punishing offenders, he said the British were apt to overlook the immense difficulties contingent on taking punitive measures against criminals in a densely wooded country. The weekly "Spectator," however, says that where criminals can go police can follow, and goes on in a strongly-worded article to suggest the bombardment of Peruvian ports, jointly by England and America, as the only way to bring Peru to a sense of her responsibilities.

In a good many quarters it was supposed that the Continental Co., of Hanover, was practically the only German maker of this material, and the brief reference in the INDIA RUBBER WORLD of July to the important position of

BALLOON AND AEROPLANE FABRICS.

Metzeler & Co., of Munich, in this business, is of interest. Of course the manufacture is bound to become more widespread, but at present there are only two firms in Great Britain which have taken it up seriously, viz., the North British Rubber Co. and the Dunlop Rubber Co. The pioneers in a new branch have, of course, more difficulties to contend with than those who come in at a later stage, and those who are now considering the matter have at their disposal a good deal of technical information of quite recent publication in France and Germany. I understand that there are now several rubber firms in America making these fabrics, though the initiative was given little more than a year ago by the

Goodyear Tire & Rubber Co. at Akron, the huge gas-bag for the Seiberling-Vaniman balloon made by them being illustrated, I may perhaps mention, in the INDIA RUBBER WORLD for September, 1911. With regard to the important point as to the life to be expected of such fabric when in use, experiments on very similar lines are being carried on at the present time, both at Charlottenburg (Berlin) and at the National Physical Laboratory, London. Whether America is doing anything in this way, I don't know. From reports to date it is clear that but little of a decisive nature has as yet been arrived at—all the more reason why new firms should be chary of going into the business.

There will be general agreement with Dr. Frank's (remarks quoted in THE INDIA RUBBER WORLD, July, 1912, p. 491) as to the importance of preventing acidity derived from the sulphur, and of course the contact of copper should be avoided. Is it really a fact that copper has been found as a constituent of plantation rubber? As up to the present, at any rate, it has not been customary in England to use metallic oxides or other acid neutralizing bodies in balloon fabric proofing, it is obvious that the selection of the particular brand of sulphur is a matter of importance. I read somewhere or other recently that firms which had laid themselves out for balloon cloth manufacture were seeking to sell excess production for other purposes. A purpose which suggests itself as appropriate is for hospital bandages, one variety at least of which is of very similar nature. This is cotton cloth proofed on both sides with pure Pará rubber and sulphur, and vulcanized. This is usually sold with a two-year guarantee; the conditions of use being pretty well known, and of course much less liable to variation than in the case of balloon use, leaving out of account altogether any possible deleterious effects due to diffusion of gases. Rubber texture of this sort is also put to other than medical uses, though not on a very large scale, and as the demand is easily met at the present time, I don't see that there is any important market for the excess balloon production.

A recent event of some importance, and of considerable interest, is the flotation of this old established rubber works

JAMES LYNE HANCOCK.

as a public limited company; not a private limited company such as exists in the case of a good many of our rubber works. The capital of the new company is £120,000, and though the names of two of the three directors are probably unknown in rubber trade circles, the fact that the third director is Mr. J. Hancock Nunn, the proprietor and moving spirit of the old concern, argues well for the future. The prospectus naturally draws attention to the fact that this was the pioneer rubber factory of the world, though the present premises in Goswell Road, London, E. C., are of considerably greater extent than the modest building which served as the commencement of business in 1821. Mr. Nunn is a grandson of the well-known Thomas Hancock, and the provision of further capital is primarily concerned with developing the scope of the manufacture. The profits of recent years have shown a steady rise up to about £11,000, and I may say that the press notices of the shares as an investment have been mostly favorable; an exception being the "Economist," which considers the cash payment of £55,000 to the vendor rather high, and £4,000 for new working capital too low.

Recent changes in the management of this company have been a topic of interest in the trade. For considerations of health, Mr. Baker returns to London, and is succeeded in the works management by Mr. Johnstone, his former lieutenant. Mr. W. A. Williams, from being assistant general works superintendent, becomes general works superintendent. Mr. Williams, who is a fellow of the Chemical Society, was formerly head of the laboratory, and it is undoubtedly an advantage for the works' superintendent to be in a position to direct and understand laboratory procedure.

THE NORTH BRITISH RUBBER CO., LIMITED.

In an interesting paragraph on emery in Pearson's "Crude Rubber and Compounding Ingredients," it is stated that in rubber mills the substance is chiefly used in the manufacture of what are known as vulcanite emery wheels.

EMERY WHEELS.

With regard to the manufacture of these wheels in England, although I cannot say for certain, yet I imagine that it is not carried on in any of the rubber mills. As far as I am acquainted with the business, it is carried on as a special branch of certain engineering works, more particularly in Lancashire and Yorkshire. These works have a complete equipment of washers, vulcanizers, etc., to make the finished wheels from the crude rubber. With one exception sulphur is the only chemical used, though I may say that linseed oil is an important component of the mixing, the exact details of which are considered a trade secret by the several manufacturers, and this in spite of the oft repeated statement that there are no trade secrets left in the manufacture of rubber today. Although the manufacture is by no means an extensive one there is nothing like a monopoly; and there are sufficient people engaged in it to cause considerable competition for the business to be done; and one hears complaints that the resulting profits are not what they were, or ought to be.

I suppose I ought to take as a delicate compliment the fact that I am continually receiving letters from various parts of the world, thanking me in advance for some free information desired. All the same I may say that I have no desire to enter into competition with the editors of technical journals, who are supposed to stand alone as purveyors of free information. It is remarkable with what cheerfulness readers' demands are met by editors, even when the latter have a profound conviction that the enquirer has read the journals in a free library, and has not expended a coin of his own. I am not going to enlarge upon the various enquiries of this sort that I have had, though I may perhaps say that a recent one from America calls for a suitable process whereby the old rubber in a laboratory can be re-made on the spot into articles such as stoppers. I believe that in America the success which has attended the reclaiming of waste rubber is largely due to the extensive scale on which the business is conducted, and I imagine that the magnates of the industry would not approve of a plant being erected for an output of a few pounds.

SEEKERS FOR INFORMATION.

Another chapter in the melancholy history of this wild rubber concern is now finished, and I note that it has been decided to reduce the original capital from £270,000 to £27,000, to give up the attempted collection of wild rubber, and to continue for the future as a plantation proposition only. Most of the influential men, whose names figured in the prospectus six or seven years ago, have retired, and it goes without saying that the results of the enterprise to date have been a source of great concern to Sir Harry Johnston, who was so prominently concerned with the venture. The inherent difficulties in the way of collecting the wild rubber

at a profit seems to have been treated much too lightly by those whose experience in West Africa inspired investors with confidence. Apart from this, however, the flotation of the corporation by the agency of the Consolidated Rubber Syndicate, at a huge profit to the latter for doing practically nothing, is a matter which in the opinion of many people ought to be investigated in the courts. Whether anything will be done in the matter is doubtful. In this case, as in that of the United Malaysian Rubber Co., where shareholders are clamoring for a Board of Trade enquiry into the details of the promotion, it seems that there are no existing powers to enforce, unless the company is in compulsory liquidation. What makes the shareholders in these two, and also in other companies I have not mentioned, so angry is the fact that they went in entirely on the faith of the prominent names on the directorate. Mere titles on a directorate have been used as a lure for the public, and the astute company promoter therefore likes to get the assistance of people well known either as politicians, administrators or business men. In the above cases the promoters were successful, but with unsatisfactory results to the investors.

DERMATIVE COMPANY, LIMITED, LONDON.

This company's report for the year ending June 30 shows the gratifying result that, after providing for the preference dividend, fifteen per cent. will be paid upon the common stock. The reserve account stands at £5,000, invested in municipal securities.

THE RUBBER TIRE TRADE IN GERMANY.

Our Consul General in Berlin in a recent report sent to the State Department, which gives a general review of German trade and industries, doesn't paint the rubber tire industry in Germany in very glowing colors. Here is a paragraph on the subject taken from his report:

"In the rubber industry business was brisk throughout the year, and there was a demand from both the home and foreign markets. Competition, however, reduced the prices of many articles to such an extent that there was but little profit either to the manufacturer or to the dealer. Manufacturers of rubber tires for motor vehicles suffered greatly from this cause. To meet the radical cut of one company it is estimated that it cost the German tire manufacturers millions of dollars. The unfavorable situation was still further accentuated by the great fall in the prices of crude rubber, which decreased the value of the stocks of raw material on hand in nearly all of the factories. Most of the companies were obliged to reduce their dividends as compared with 1910. The outlook for the present year cannot be considered bright, not on account of lack of orders, but owing to the tendency of the manufacturers and dealers to cut prices."

THE PROPOSED TARIFF REFORM IN HOLLAND.

The proposals now under consideration by the Dutch government for changes in duties include the following alterations:

INDIA RUBBER, GUTTA PERCHA:	Present Rates.	Proposed Rates.
Sheets, plates; and all unmanufactured india rubber and gutta percha.....	Free	Free
Rods, pipes, cords, tubes, hose-pipe or tape, not specially mentioned	5%	3%
Tires for bicycles and carriages.....	5%	10%
Manufactures not separately mentioned	5%	12%

Replete with information for rubber manufacturers: Mr. Pearson's "Crude Rubber and Compounding Ingredients."

The Rubber Industry of Japan.

By Our Regular Correspondent.

THE OSAKA RUBBER INDUSTRY.

IN addition to the Kakuichi Rubber Co., described in the last letter, Osaka contains a number of other rubber manufacturers; some of them combining a wholesale department with their manufacturing activity.

Prominent among these are the Hirano Rubber Works, established in May, 1894; the date of its foundation rendering this the oldest rubber concern in Osaka. It makes a varied line of rubber manufactures, and covers an area of one acre, of which the buildings occupy one-half. Its power plant includes one 25 horse-power boiler and one 30 horse-power engine. The managing owner is M. Hirano, formerly a rubber trader; in which capacity he became acquainted through an Indian friend, with an Englishman, a rubber manufacturer, from whom he learned how to manufacture rubber goods. The initial process then used by Japanese rubber manufacturing companies, was that of drying rubber by heated sand.

Next in seniority comes the Sumitomo Electric Wire & Cable Works, which dates its manufacture of copper electric wire from the year 1897, when its predecessor, the Sumitomo Copper Works, bought out the Nippon Copper Manufacturing Co., Limited, and started the manufacture of copper wire. Owing to the development of the Japanese electrical industry, the Sumitomo Copper Works in 1907 engaged an English expert, for the production of the various preparations intended for the manufacture of insulated wire cables and paper cables. In the following year the two concerns were separated; their titles being the Sumitomo Copper Works for the previous concern, and the Sumitomo Electric Wire and Cable Works for its offshoot. They still occupy the same location, but it is contemplated in a few years to rebuild elsewhere the plant of the younger concern. The owners are members of one of the richest families in Japan. The testing apparatus of the wire works is remarkably complete; including the various instruments required for chemical, mechanical and electrical tests. The production now includes:

1. Stranding wires; weatherproof wires; cotton and silk braid.
2. Copper, brass, aluminum, nickel and bronze wires.
3. Paraffin wires; cotton or silk cords.
4. Rubber covered wires and cables.
5. Lead-covered paper cables for telephones, electric light and power; rubber insulated lead-covered wires; paper or rubber insulated lead-covered cables.

The Oishi Rubber Works were established in November, 1901, and employ 16 hands; having one 15 horse-power boiler, and one 10 horse-power engine. A large part of the trade consists in the distribution of the products of the Kakuichi Rubber Co. of the same city, already referred to; so that an extensive variety of rubber goods is handled by this concern.

In 1905, the limited partnership was formed, which operates the Teikoku Rubber Works. This firm manufactures rubber balls (of which it produced about 5,000 dozen in 1911); as well as sockets for gas. Its capital is \$10,000; its hands numbering 60.

Among the installations of 1907 was that of the Kansai Rubber Works, manufacturing water bottles. It employs 20 hands, and has a 5 horse-power engine.

In the same year was started the Kaniwa Rubber Factory (Oshima Shoten), making ebonite products, rubber tubes, etc. Its engine and boiler are each 8 horse-power, and the staff numbers 25.

The Nippon Electric Wire Manufacturing Co. was organized

in 1907, as a limited partnership; its principal manufactures being insulated wires and cords. Its capital is \$50,000, of which the sum of \$35,000 has been paid in. Last year it paid a dividend of 10 per cent.; having a reserve fund of \$2,300.

Another Osaka concern is the Arenkenn Rubber Works, established in November, 1910. It makes jinrikisha tires, tubings and hose; as well as "tabi" soles. The area of the plant is 1¼ acre, of which about one-half is occupied by buildings. It employs 16 hands, and has a 25 horse-power engine.

The Lion Rubber Co., established April, 1911, manufactures water bottles and air pillows; employing 15 male and 20 female hands. Its boiler and engine are each of 8 horse-power.

Another new installation of last year was the Asahi Rubber Co., making water bottles and erasers. It employs 20 hands, having one 15 horse-power boiler and one 12 horse-power engine.

The Oku Co., established in October, 1911, manufactures electric insulation supplies and air pillows. It has a 25 horse-power engine, and employs 10 hands.

In January, 1912, the Tiger Rubber Co. was established for the manufacture of medical goods, insulating tape and ebonite. Its staff includes 15 hands, and its mechanical equipment one 8 horse-power engine.

Finally, the Osaka Rubber Works, likewise established in January, 1912, for the manufacture of a general line of rubber goods, seems to contemplate an extensive production; its engine being 40 horse-power.

JAPANESE IMPORTS OF BICYCLE TIRES.

It is estimated that there are in Japan about 500,000 bicycles. About 30 per cent. of the tires for these is supplied by the Dunlop Rubber Co. (Far East), Limited, which was established at Kobe in 1908. British, American, German and other foreign rubber companies supply about 40 per cent, Japanese companies furnishing the remaining 30 per cent.

The actual difference between the old and new Japanese duties on bicycle tires is as follows:

New duty per 100 lbs.....	yen 114.00 = \$56.44
Old duty per 100 lbs.....	95.60 = 47.33

Difference per 100 lbs.....yen 18.40 = \$9.11

A comparison of the Japanese bicycle tire imports during the seven months of 1911, when the old tariff was in operation, and those of the first five months under the new tariff, shows the effect of the last-named measure:

JAPANESE BICYCLE TIRE IMPORTS FOR 1911.

	January to July	August to December	Total.
	Old Tariff.	New Tariff.	
From Great Britain.....	\$347,629	\$170,443	\$518,072
United States	7,025	8,305	15,330
Germany	3,189	377	3,566
France	1,049	26	1,075
Italy .....	.....	219	219
	\$358,892	\$179,370	\$538,262

Average per month..... \$51,270 \$35,874

The average reduction was thus to the extent of one-third; Great Britain, as the predominating source of supply, being, of course, the chief sufferer.

Of the imports from Great Britain, of \$347,629 for the first seven months of 1911, the amount of \$124,242, or approximately one-third, belonged to the month of July, it being thus shown that the large imports of that month were in view of anticipated requirements, provision for which was left till the last moment.

In addition to being imported into Japan as "bicycle tires," some of them are imported under the heading of "bicycles and parts thereof." In this connection the following figures of bicycle imports for 1911 will prove of interest:

JAPANESE BICYCLE IMPORTS, 1911.		
From	Number.	Value.
Great Britain	19,704	\$342,686
United States	564	15,937
Belgium	30	632
Germany	18	1,283
Japanese China	13	403
France	2	217
Switzerland	2	82
Canada	1	15
Other countries	6	218
Total	20,340	\$361,473

YAMATO RUBBER WORKS.

This company was established in 1908 at Kameida, Tokyo, by Ikumatsu Ouchi. Its motive power is furnished by one 80 h. p. boiler and one 18 h. p. engine, the products including mechanical goods (with the exception of hose) and jinrikisha tires.

DEVELOPMENT OF JAPANESE ELECTRICAL INDUSTRIES.

The report of the British Commercial Attaché at Yokohama on the trade of Japan in 1911, confirms the statements which have appeared as to the progress of the rubber industry in Japan. Owing to the connections which exist between the owners of copper mines and the insulated wire mills, either as owners or furnishers of wire, the latter have more capital than is usually the case with such concerns. The copper manufacturing firms assist the mills by giving them credit on the wire supplied to them. Manufacturers of insulated wire are thus in a much more favorable position than those in the mechanical branch of the industry.

One of the principal difficulties affecting the mills is the lack of experienced technical men. The manufacture of insulated wire has already served to check the imports of European rubber-covered wire.

AN ENGLISH VIEW OF THE CRUDE RUBBER SITUATION.

DEALING, as it does, with the latest available figures, the report of the Rubber Plantation Investment Trust shows the present statistical position of the crude rubber market, as it appears to English eyes. According to the report in question, as summarized, the following is a fair estimate of the rubber consumption for 1903:

America	47,500 tons.
Great Britain	15,000 "
Germany	15,000 "
France	10,000 "
Russia	7,000 "
Belgium	1,500 "
Various countries	7,000 "
Total	103,000 tons.

Against this estimated consumption, the production for 1913 is estimated at about 91,000 tons.

The detailed figures composing this estimate are:

South America	39,000 tons.
Plantation (at a very high rate)	28,500 "
Africa	15,000 "
Central America	5,000 "
Assam, Rangoon, Borneo, etc.	2,500 "
All other sources	1,000 "

91,000 tons.

ENGLISH CONSUMPTION.

In establishing the figures of a nation's net consumption of rubber, the returns of imports must be diminished by the amount of exports. The figures quoted for England in this connection are instructive:

UNITED KINGDOM RUBBER RETURNS.

	Imports. Tons.	Exports. Tons.	Net Consumption. Tons.
1910	25,124	13,052	12,072
1911	23,369	13,385	9,984
1912	25,718	18,542	7,176
1913 (Estimated)			15,000

These figures indicate that English manufacturers are now bare of stocks, having absorbed within the last few years a constantly decreasing proportion of the imports. To make up for this growing deficiency, an augmentation of consumption for 1913 has been estimated.

AMERICAN CONSUMPTION.

The most salient point in this estimate is the quantity of about 47,500 tons prospectively allotted to the United States, representing about 45 per cent. of the world's entire production. That this is not an extravagant estimate is shown by the figures of the recorded United States imports of rubber for the last three fiscal years ending June 30:

UNITED STATES RUBBER IMPORTS.

	Pounds.	Tons.
Fiscal year, 1909-1910	101,044,681	50,500
Fiscal year, 1910-1911	72,046,260	36,020
Fiscal year, 1911-1912	110,210,173	55,105

As the above figures are for the fiscal years ending June 30, the figures for the calendar years immediately preceding are instructive for purposes of comparison:

UNITED STATES RUBBER IMPORTS.

	Pounds.	Tons.
Calendar year, 1909	93,967,414	46,984
Calendar year, 1910	90,139,232	45,570
Calendar year, 1911	82,921,465	41,460

American imports for the fiscal year 1911-1912 are thus on an unprecedented scale of importance, while according to the estimate as quoted above, the American consumption for 1913 is placed at about 47,500 tons, against a recorded import of about 55,000 tons for the fiscal year, 1911-1912, ending June 30 last. There is thus apparently no reason why this country should not continue to take one-half of the world's production of rubber.

RUBBER TRADE OUTLOOK.

Commenting upon the recent estimate of 103,000 tons for next year's rubber consumption of the world, as compared with an estimated production of 91,000 tons, and the present shortage in visible supply, a writer in the "City Press" of London gives the following advice to English manufacturers: "I am confident that the figures of production and consumption justify a much higher price for rubber than is at present ruling, and I think that if the English and continental manufacturers are not careful, the Americans are going to get them short. They have had them short, as a rule, before, and they will have them so again."

Some Rubber Planting Notes.

BAH LIAS TOBACCO & RUBBER ESTATES, LIMITED; EAST COAST OF SUMATRA.

THE first meeting of this company, formed in 1911, took place on July 23 at the London offices, 49 Eastcheap. It had been formed to take over concessions of the total area of about 40,000 acres, of which at the end of January 1,540 acres in the Bah Lias section had been planted in rubber; the 207,000 trees having been planted 18 x 18. It is contemplated to plant a further 700 acres this year; the preparation for which has been making rapid progress. This block is situated in the middle of the estate and when planted will render the whole area one solid block of rubber. As to the Soengei Brohol portion, it was not contemplated to make further clearings, but intended that the 557 acres planted between 1900 and 1911 should be got clean and in excellent condition. It was further proposed to plant 300 acres under Pará rubber in the Soengei Brohol section during the current year.

BAMBRACKELLY (CEYLON) TEA AND RUBBER COMPANY.

The progress being made by this company is shown by the fact that the yield of rubber, which for the nine months ending December, 1911, was 32,011 pounds, is estimated by the annual report as probably amounting for 1912 to 75,000 pounds. This anticipated increase of yield is accompanied by an estimated cost of 1s. 5½d. per pound, as compared with 1s. 9½d. actual cost for 1911. More rubber at lower cost will doubtless favorably affect the results of the current year, which have already shown increased profits for 1911.

MALAYAN OPINION OF AMERICAN RUBBER PROSPECTS.

The following opinion of a Malayan expert is quoted by the "Malay Mail."

"The forthcoming New York exhibition is of paramount importance to Malaya and the rubber industry. Just now the Mexican supply is giving out and what America wants to know is whether Malaya can supply what she is buying at present from Brazil. We say yes, and provided America is suited with our rubber, another boom is I can almost say, probable. America will not buy the wild article from Brazil any longer when Malaya's exhibits have been seen and tested. Brazil's supply will not expand—it cannot—but the producing capacity of this country is unknown, it is so vast."

AMERICAN AUTOMOBILES IN MALAYA.

The American automobile appears to be making its way very rapidly in the Malay Peninsula. The American Vice-Consul General at Singapore states in a recent report that "a local firm which was until recently the most formidable competitor of American motor cars in this district, and which had the best facilities and connections for extending the trade of foreign makes of cars, has just obtained the services of an American motor-car expert to take charge of its garage. This firm now holds agencies for three American cars and has practically abandoned its British and Continental business. From this and similar instances, it is evident that the market for American goods is here and obtainable, provided it is sought for in the proper manner."

LIVELY TIMES IN MEXICO.

Rubber planting in Mexico has been attended with a good many unusual, not to say, exciting episodes during the last year. It is a decidedly lively occupation as will be seen from the following extract taken from a letter recently received in this office from a well-known rubber planter in that republic:

"Our *Hevea* at this place is very fine, and I am now setting

out from last year's nursery some 30,000 trees. I have some trees here 19 months from seed in position—that is to say, not transplanted; hence, not checked—that have reached in the time indicated a height of 18 feet, with trunks 8 inches in circumference at one foot above ground—6 inches in circumference at two feet above ground and 5½ inches at 3 feet above ground. This is not beaten a great deal anywhere. In due season I shall send you some photos, if you would like to have them. Brigandage is pretty bad hereabouts. Day before yesterday a small band dropped in just at dusk. We numbered four rifles, and we gave them a warm reception. Net result—one dead bandit, one wounded. No casualties on our side. We captured two horses, one rifle and one pistol—about 50 shots exchanged. And now today after hot wires and mails for three months, there arrived the long-promised protection—a detachment of mounted *rurales*; and another detachment *en route* from Ardoña to clean out this infested district."

SANTA MARIA DEVELOPMENT CO.

The Santa Maria Development Co., of St. Paul, Minnesota, whose directors include a number of well-known business men of that city, is engaged in developing a rubber plantation in Mexico. In the summer of 1910 the company purchased what is known as the Santa Clara tract, containing over 6,000 acres in the Soconusco district. In addition it bought a nearby plantation consisting of 400 acres—half of which had been planted to rubber trees, having 60,000 trees ranging from three to ten years of age, over 30,000 of the trees being nine and ten years old.

During the season of 1911 the company cleared 650 acres of the Santa Clara tract, planted it to rubber, built over fifty houses for laborers and raised 500 acres of corn. The company will send illustrated literature to anyone who is interested in the project. The home office is in the Oppenheim Block, St. Paul, Minnesota.

A GOOD WAY TO CARRY LATEX.

The time honored way of carrying latex from the trees on the plantation to the coagulating house, has been to use a five-gallon kerosene can. Sometimes it has been carried in cans upon the head. Here is a "Latex Barrow," which is a wonderful time saver,



A LATEX BARROW.

as it holds 30 gallons, and in larger sizes 40 gallons, and saves a great many unnecessary trips. The mechanism at the side is for convenience in emptying the barrow. [Robert Warner & Co., London, England.]

THE BOLIVIAN RUBBER INDUSTRY.

IN a recently published monograph,* the Bolivian rubber industry has been officially dealt with from various points of view. Starting with a geographical description of the country, its natural wealth and products are next touched upon; while with a view of completeness, there follows a botanical classification of the chief rubber producing plants, prominence being given to *Hevea*.

While the treatment of this subject is to a great extent general in character, the special features of Bolivian rubber culture are likewise dealt with, the text being supplemented by illustrations of the leaves of *Castilloa Ulei Warb*, *Castilloa Australis Hemsl*, *Manihot Glaziovii Muell Arg*, *Sapium Verum Hemsl*, *Micrandra Siphonoides Muell Arg*, and other varieties more or less identified with Bolivia.

HISTORY OF RUBBER IN BOLIVIA.

Much interest attaches to the historical account of rubber production in Bolivia. In 1846, the national government instructed the Prefect of the Department of Beni to explore the unknown portions of the rivers Beni, Mamoré and Madeira. From 1846 to 1880 these regions were infested by cannibals, whose internecine conflicts led, however, to practical depopulation. When Dr. Edwin Heath, in 1880, undertook the exploration of the Beni region, he scarcely found any traces of these tribes.

At that time Bolivian proprietors had been attracted by the profits attending the culture of quinine, which reached the European markets through the port of Pará. Asiatic competition, however, materially affected the demand for South American quinine, notwithstanding the excellent qualities of the latter.

In 1863, several Bolivian proprietors conceived the idea of growing rubber, thus furnishing occupation for their hands. Their methods were rudimentary in character, operations being carried on in various islands, from which they extended to the Madeira and other tributaries of the Amazon. The next year (1864) the first serious rubber enterprise was established in Bolivia, at the mouth of the river Yata, a tributary of the Mamoré. The crop of that year represented about 1900 pounds and was the first Bolivian rubber produced. About the same time other enterprises started, but do not seem to have been seriously developed, an opinion gaining ground that it was impossible for Bolivian rubber to compete with the Brazilian product. The former, it was stated, had been found much inferior to the latter in the quantity and quality of latex.

New efforts were made in 1874 and 1875 to promote Bolivian rubber culture, which were attended with success. By 1878 the production had increased to 50 tons. About 1880 a veritable rubber fever was developed, largely owing to the initiative of Dr. Heath (the American explorer), already referred to. The year 1882 witnessed a notable development in the Beni territory which progressed from that time.

STATISTICS OF PRODUCTION AND EXPORTATION.

The history of Bolivian rubber culture is best told by the statistical return since 1890, which forms one of the most interesting features of the monograph:

	Tons.		Tons.		Tons.
1890	294	1897	1,674	1904	1,569
1891	345	1898	3,155	1905	1,677
1892	363	1899	2,140	1906	1,929
1893	394	1900	3,496	1907	1,830
1894	632	1901	3,465	1908	2,607
1895	820	1902	1,903	1909	3,052
1896	1,140	1903	1,321	1910	3,118

Although subjected to various fluctuations, the production of rubber in Bolivia has thus increased ten-fold within 20 years.

While Bolivian rubber reaches the world's markets to a large extent through other countries, Bolivia has a custom house system which shows the ultimate destination of rubber leaving the country. This information is shown for the last five years reported upon, in four different forms:

SOURCES OF PRODUCTION.

	Tons.
Department of Beni	6,895
National Colonial Territory	2,955
Department of La Paz	1,624
Department of Santa Cruz	1,063
Total (5 years)	(tons) 12,537

FIVE YEARS' SHIPMENTS.

	Tons.
1906	1,930
1907	1,830
1908	2,607
1909	3,052
1910	3,118
Total (5 years)	(tons) 12,537

DESTINATIONS.

	Tons.
England	7,053
Germany	2,351
France	1,959
Belgium	782
United States	392
Total (5 years)	(tons) 12,537

EXPORTING CUSTOM HOUSES.

	Tons.
Villa Bella	6,319
Cobaja	2,386
Porto Suarez	828
Abuna	569
Oruro	527
Taraja	121
La Paz and others	1,787
Total (5 years)	(tons) 12,537

EXPORT DUTY.

The export duty at present in force in Bolivia, according to the law of August 23, 1900, is 12 per cent. *ad valorem*.

The monograph is replete with statistical information, giving full lists of Bolivian plantations, with names of owners.

Owing to the proximity of Brazil, various points dealt with affect the interests of both countries, but the above extracts of references purely Bolivian in character reflect the scope of this comprehensive and carefully edited volume, as far as Bolivia is concerned.

TO PRODUCE CHICLE IN VENEZUELA.

The Minister of Agriculture in Venezuela has granted to José Patrocinio Cuéllar, of Caracas, an exclusive 10-year privilege to establish plants for extracting chicle in that country. He is compelled under this concession to do all he possibly can to extend the planting and cultivating of the chicle-gum producing trees, and if he ceases to operate his concession actively, it lapses at the end of a year of such cessation to the government. This is a new industry for Venezuela.

*MONOGRAFIA DE LA INDUSTRIA DE LA GOMA ELASTICA EN Bolivia. (Monograph on the Bolivian Rubber Industry.) By Manuel V. Ballivian and Gasto F. Pinilla, La Paz, 1912. [354 pages; 8vo.; with appendix of 84 pages.]

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

THE BALATA COMMITTEE'S REPORT—OUTLINE OF THE RECOMMENDATIONS.

THE report of the Balata Committee, which has now been published, is a document of considerable length and of great importance. Its recommendations are numerous, and their adoption would probably prove helpful to the industry; but considerable difference of opinion has been expressed already, and any ordinance that might be framed upon the report is certain to be met with considerable opposition and criticism. The recommendations may be summarized briefly as follows:

That registration be transferred from the Institute of Mines and Forests to the Department of Lands and Mines; that the Institute of Mines and Forests shall continue the work of contracting, and that legislation shall be passed making the execution and recording of contracts before an officer of the institute compulsory for validity; that the registration fee shall be two shillings, to be paid in equal proportions by the employer and the laborer; and that the contracting fee shall also be two shillings, to be paid in equal proportions by employer and laborer; the total effect of such change being an increase of sixpence, one shilling less for the laborer, and one shilling and sixpence more for the employer; that the Institute of Mines and Forests shall be reorganized, its by-laws and rules being submitted to the Governor and the Court of Policy, its accounts audited annually by the auditor-general; no individual to be admitted to membership unless directly connected with one of the forest industries, the Council to satisfy itself as to the eligibility of candidates; the Council to consist of a president, vice-president, treasurer and six ordinary members, the president and vice-president not necessarily being members of the Institute; the Governor-in-Council having the power to nominate three members of Council, who need not be members of the Institute, and who need not be employers, in order to secure independent representations.

That the settlement of disputes should be facilitated by the submission of grievances to land officers in the districts, such statements to be admissible by law in any proceedings before the commissioner and in courts; the land officers to settle disputes whenever possible, and to visit grants when there are complaints of no balata or insufficient balata, insufficient food, over charges, ill treatment, etc.; that Balata Regulations be introduced on the basis of the Mining Regulations; the possession of balata, unless lawful ownership is proved, and illicit dealings in balata, being made punishable, as in the case of gold, diamonds and old brass.

That the time is inopportune for further increasing the taxation of the industry for general revenue, since it already contributes approximately \$100,000 in excess of the total cost of the Lands and Mines Department, but that a tax of \$10 for every 50 square miles of area held be imposed for development purposes; that as little interference as possible should be made with the freedom of contract, but that certain conditions should be met, such, for instance, as that there shall be only one general form of contract, containing the conditions of universal application, and the outlines of optional stipulations, the price to be paid for balata and the method of payment to be agreed upon, a list of provisions to be included, with the prices, the laborers to be asked to pay no more than the Georgetown price, saving a reasonable allowance for transport, store-keeping expense, depreciation and loss, all profits from dealings in supplies between employers and laborers being discouraged; contracts to state

whether the work is to include bleeding or prospecting or both; compensation amounting to \$20 or \$30 to be paid when no wood is found on a prospected grant; contracts to state whether the work is to include the clearing of creeks, cutting of fixed paths or transport work, a fixed rate of pay being mentioned; that the *livrette* system shall be adopted; that advances should be limited to \$20 for laborers for work below the Falls and \$30 above the Falls, and for foremen \$35 below and \$40 above; that \$60 be the maximum indebtedness recoverable from a laborer, and that three-fifths of this maximum be recoverable in the following season by a lien to hold good upon any balance due to the laborer from any second employer.

CRITICISM OF THE REPORT.

The proposals of the committee have not escaped criticism. It is felt that the transference of registration to the Lands and Mines Department is a mistake, because it would cripple the Institute financially, and because the Lands and Mines Department would probably not do the work as well. Many gentlemen, interested in the industry, have taken this view. The case for the Institute has been most powerfully stated by its counsel, Mr. W. Maynard Payne. Licencees do not regard with favor either, the suggestion that a development tax should be imposed. They point out that a similar tax was put on the gold industry, and that the money went into the general revenue, chiefly to pay officials' pensions with. It is also pointed out that the industry cannot bear further burdens. It is suggested also that it would not find favor unless the money collected from each company was spent on that company's property. This, however, would appear to be an argument not entitled to much consideration. Similarly, the plea that the industry is already overburdened, is to be met with the reply that inasmuch as profits are small owing to the high costs of production, investment in directions calculated to reduce those costs, such as this proposed tax amounts to, would be wise. The fear that the money would go to swell the general revenue is a reasonable one, and the contingency would undoubtedly have to be provided against. I am inclined to doubt if the proposals for dealing with the absconding evil will fully meet the case. The report is very ample and informing, and may render the industry some assistance, but whether it will solve all its problems is open to considerable doubt.

CUTTING DOWN OF BALATA TREES—ALLURING FIGURES.

The theory that the cutting down of balata trees will prove the salvation of the balata industry has cropped up again; Mr. Henry Daley, attorney of the Essequibo Rubber and Tobacco Estates, against which concern a compulsory winding-up order has been made, having raised the question. It may prove the salvation of some companies which are near bankruptcy, but it is questionable whether it will save the industry. Mr. Daley gives us some glowing figures. He suggests, that as the cost of collection will be one-third of what it is now, and as the output will be three times as great, the balata licencees will be willing to pay a royalty of six cents per pound of balata, and that 5,000 men would be provided with work for 25 years, from which the government would draw in royalties \$100,000 per annum. He suggests that this would provide the guarantee of interest on any railway scheme that might be put forward, and that as the future for balata is anything but bright, owing to the fact that low-grade rubber on vulcanization makes the best belting, permission should at once be given. Mr. Daley's figures are purely approximate and have already been questioned. The proposal is unlikely to secure a large measure of public support and the Administration will scarcely give it effect.

THE BALATA TRADE PRINCIPAL CONSUMERS OF THE EXPORT.

The report of the Comptroller of Customs for the financial year 1911-12 has just been issued. The following are the figures relating to the quinquennium:

	Pounds.	Value.
1907-1908.....	973,269	\$373,640.14
1908-1909.....	1,090,405	471,016.89
1909-1910.....	1,034,076	468,034.81
1910-1911.....	1,162,558	670,192.32
1911-1912.....	1,101,593	673,350.11

The industry thus, despite its many troubles, is in a progressive condition so far as output is concerned. Although the exports in 1911-12 were slightly smaller than in the preceding year, values were somewhat better. The following table gives the direction of the exports:

	UNITED KINGDOM.		UNITED STATES.	
	Pounds.	Value.	Pounds	Value.
1907-1908.....	625,531	\$237,409	259,189	\$111,296
1908-1909.....	734,665	321,166	248,715	103,543
1909-1910.....	764,131	353,938	186,456	75,938
1910-1911.....	786,759	483,342	101,217	75,181
1911-1912.....	923,759	542,123	175,602	129,887

CEARA RUBBER GROWING—POSSIBILITIES FOR THE INVESTMENT OF CAPITAL.

I have had a conversation with Mr. H. P. C. Melville, Commissioner of the Rupununi District, which includes the Savannahs bordering on the Brazilian Savannahs, and he informs me that the possibilities of establishing a Ceara rubber industry there are most favorable. The opportunity for the prudent investment of capital appears to be an excellent one. Mr. Melville, who has a homestead in the district, has planted a fairly large acreage to Ceara trees. His trees are now four years old and he has commenced tapping, in order to obtain a commercial sample for the New York exhibition, but on learning that no colony exhibit was to be sent, he confined his work to experimental tappings. He obtained from twelve trees after eight days' tapping 1½ pounds of rubber, of which only ¼ pound was "scrap," the remainder being very fine amber-colored biscuits. Mr. Melville informs me that there is a large area in the district available for the cultivation of Ceara, and that he has no doubt even if rubber goes to 2s. 6d. per pound a fair margin of profit would be secured. Means of communication are defective, but not such as to lessen the possibility of profitably conducting the industry, which, if established, would further influence public opinion in favor of the trunk railway, in which direction it is already strongly inclining. It may be of interest to point out that the Department of Agriculture has already spoken favorably upon the possibilities of Ceara cultivation on the Savannah. On the coast lands it has proved unsatisfactory, but on the Savannah area the growth of *Manihot Glaziovii* has been very good. They state that this district of the far interior resembles in many of its characteristics the Ceara district of Brazil. There would appear to be every reason to believe that the district is well suited to the cultivation of Ceara rubber, and that early returns could be obtained. Mr. Melville's information more than establishes this.

MEXICAN RUBBER WEALTH.

According to a carefully prepared table of the present wealth of Mexico, which has been transmitted to our government by the American Consul at Chihuahua, the rubber industry of Mexico is valued at \$22,000,000, \$15,000,000 of which is owned by Americans, \$2,500,000 by other foreigners, and \$4,500,000 by citizens of Mexico.

TESTING RUBBER AT PLANTATIONS.

IN recent discussions of the question of testing rubber at plantations it has been pointed out that it is very difficult for planters and manufacturers to keep in touch with each other. Rubber goes on to the market and passes into the hands of the manufacturer. Some seems to go well and some does not prove satisfactory, but the planter cannot usually ascertain the precise reason.

With a view to affording a solution of this difficulty, it has been asked whether the planter can maintain a uniform standard of quality, so that if he furnishes a commodity approved by the market, he may continue to furnish that product. The question is then: By what means can the planter so keep track of a quality produced that his subsequent product shall be according to that particular standard?

According to statements of plantation experts, there is at present no test of the character indicated, the only one being the negative test of keeping the rubber free from tackiness. In this connection the suggestion has been made that while an absolute test may seem impracticable, a comparative test can be carried out. The principal difficulty seems to lie in the application of a reliable test for elasticity, which, of course, is the principal characteristic of a good rubber. At the London Rubber Congress of 1911, Dr. Huber described a comparative test which showed which of two strips of rubber was the stronger. While such was not an ideal test, it would enable the planter to ascertain whether one lot was inferior to another. The difficulty has been pointed out, however, of getting two pieces of rubber exactly alike in all three dimensions.

The planter's idea should be, it has been urged, to ship plantation rubber free from traces of the coagulating medium and entirely dry, so that further washing and drying by the manufacturer will not be necessary. Traces of the coagulant or of moisture will affect the vulcanization by the manufacturer. It has also been suggested for planters to test rubber in the early stages, and not to wait till it is in block form.

While the desirability of plantation tests of rubber has been forcibly represented, their practicability has been questioned. It has, however, been considered possible, that uniformity in the quality of rubber produced might be ensured by uniformity in the methods of preparation. This uniformity is naturally a matter which planters can control for themselves, on the principle that like treatment of a like material will produce like results wherever the tests are made. Uniformity of product can be obtained, it has been urged, by simply keeping to the same conditions all the way through—from the collection of the latex to the shipment of the rubber.

While a good deal of attention has thus been paid to the question of the testing of rubber at plantations, as compared with previous shipments, the establishment of uniform standards, to which both should conform, would carry the question a step further, necessitating a definite understanding between planters and consumers. It has been pointed out that the quality of a rubber does not wholly depend on its tangible external characteristics, but on the local conditions, which call for study before setting a standard based on external appearance. It has likewise been represented that too exacting requirements should not be applied to planters on the subject of uniformity, it being urged that no manufacturing process could be relied upon to obtain a uniform product by simply observing the same conditions throughout. Methods have, however, been evolved, by which manufacturers can tell when they are going wrong and can prevent evil consequences.

The place where the manufacturer comes into close touch with rubber, and where he draws his first accurate conclusion, is where he vulcanizes it, and the vulcanization test is not by any means out of the question on plantations. A simple little mixing

mill, and perhaps a calender for calendering sheets, and a little vulcanizing press, could be laid down, it is asserted, for something like \$1,250.

The problem is to get uniformity, the lack of which is regarded as the growing evil of the whole rubber planting industry. Let us hope that the New York Rubber Congress will carry the matter a long step further, in continuation of the valuable work done by the London Congress.

BRAZILIAN NOTES.

UNDER date of July 26, a Brazilian decree was issued embodying the new regulations of the Brazilian Minister of Agriculture, adopted as a result of the late rubber congress. These regulations were reproduced in THE INDIA RUBBER WORLD of June, 1912 (p. 427).

They provide for a reduction in the cost of material and tools, for prizes to be given to rubber growers, and for establishing experimental farms and rubber factories in Brazil. Further inducements are to be offered to immigrants, and it is proposed to erect hospitals in the Amazon Valley to serve as a nucleus of agricultural colonies which are to be founded. It is also intended to reduce freights on the Amazon River, to improve the navigation of other important rivers, to establish food-producing factories, to lease State properties, and to organize triennial exhibitions. The measure, which will come into force immediately, has been well received.

THE BRAZILIAN RUBBER SYNDICATE A FACT.

According to a recent report from the American Consul at Pará, the Brazilian Rubber Syndicate is now an accomplished fact. He writes under date of July 15 as follows:

"Final arrangements have been concluded between the Bank of Brazil and the parties interested in and forming the syndicate organized in 1910 to increase the price of rubber whereby the latter will, under conditions as yet unknown, take charge of and dispose of same. The amount of rubber held by the Bank of Brazil as collateral for money advanced to finance the aforementioned scheme is 2,400 tons. I am informed that it is the present intention of the directors in charge of this liquidation to dispose of this rubber to bona fide manufacturers only, hoping in this way to avoid manipulation by dealers who might be interested in affecting the price of the coming crop. I am further informed that the rubber is only to be sold and shipped from here, as its storage in either London, Liverpool or New York might have the effect of depressing present prices. This rubber is all of first quality, being bone-dry, and should on its merits command a higher price than new rubber."

AMAZON STEAM NAVIGATION COMPANY, LIMITED.

The winding up of this company, which commenced in May, 1911, was practically completed by May 4, 1912, at the date of the report lately issued by the liquidators.

By the sale of the fleet of steamers, lighters and tugs, the fixed property in Brazil has been disposed of upon terms which, in the liquidators' opinion, were very advantageous to the company. This almost total realization of assets has permitted the return to the shareholders of the whole of the issued capital of 40,419 shares of £12 10s. each, fully paid, in addition to a surplus of £2 per share. A further small return still remains to be made, the amount and date of which cannot yet be announced; several of the items still forming the subject of litigation.

A notable feature of the liquidation is the relatively small expense it has involved. The collection of nearly £600,000 has been effected at a cost for salaries in London and Brazil, representing less than £3,000, or about ½ per cent.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

SOME NEWS NOTES FROM MANAOS.

By a Resident Correspondent.

THE Commercial Association is still actively engaged in preparations for the forthcoming rubber exhibition. By the steamers leaving here (Manáos) August 17 and 27, thirty tons of uncut rubber will be forwarded to New York to be placed on view at the exhibition. Among this rubber, which will come from the Matto Grosso and Acre districts, as well as from Amazonas, there will be one "pelle" weighing 518 ks. (1,140 lbs.). Another interesting exhibit will be a section of a very large *Hevea* tree.

Illustrated pamphlets in three languages are being prepared for free distribution from the Amazonas section. There will be a pamphlet for each State represented. The illustrations in the book of the Acre district are from photographs taken by Prof. Ule, a German explorer, who visited the Acre in behalf of the Manáos Commercial Association last year. He made a full report of the conditions found, and of the prospects for development of that district, which he will publish later.

The Amazonas pamphlet will be written by Sr. Manoel Lobato, the private secretary of Governor Bittencourt. The governor is displaying great interest in the plans of the Commercial Association, and is doing all in his power to assist them in making this State's representation at the exhibition worthy of the region from which it comes. He is sending Sr. Lobato to New York as his personal representative, in addition to the representatives of the Commercial Associations named in the Manáos Notes, which appeared in the July issue of THE INDIA RUBBER WORLD.

There will be one contestant from Amazonas for the prize offered for the best plantation rubber. Sr. Da Costa, a young Brazilian, educated in England, who with his father has rubber estates on the Madeira River, will show sheet rubber made by himself from the milk of planted trees, cured by the Eastern process, in place of the original Brazilian method of smoking it. He claims that his product is superior to that usually shipped from here.

The political situation here has cleared up. Before the election (July 14) there was a general feeling that there might be an outbreak of the bad feeling between the Néry and Bittencourt factions, similar to that of October, 1910. However, a conciliatory ticket was arranged, and the candidates, Dr. Jonas Pedrosa for governor, and Sr. Guerreiro Antony (vice-governor), were elected for a term of four years from January 1, 1913. Dr. Pedrosa, who now lives in Rio de Janeiro, is an old Mananense, and it is expected that he will take great interest in the development of this State.

There has been talk for some time of running a railway from here to Itacoatiara. Dr. Jorge Estrellita has received a concession from the Government, giving him permission to build it. The first stake of the preliminary survey was driven last month, attended by an elaborate public demonstration. As Itacoatiara is a river port easily reached by steamers in a few hours from here, the necessity of the proposed railway is not apparent.

The official opening of the Madeira-Mamoré Railway has been postponed until next month (September). Mr. R. H. May, head of the contractors, has left for Rio de Janeiro, going thence to Europe. Mr. Jekyll sails by this steamer for New York. Mr. Dohse, who has been chief engineer of the undertaking for the past two years, has been left in charge. He is now on his way to Bolivia to start work on another piece of railway to join the Madeira-Mamoré.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Trees and All About Them; Rubber Trade Directory of the World.

NEW TRADE PUBLICATIONS.

THE industrious advertising department of the B. F. Goodrich Co., Akron, Ohio, has just issued a series of pamphlets on a variety of rubber topics, which will interest divers people. One is a folder which might properly be termed, "A yard of fire department," as when spread flat it is three feet long, and shows, on one side, a procession of six combination hose wagons and chemical engines, used by the city of Birmingham, Alabama, all of them being equipped with the "Goodrich Wireless Tires." The rest of the space in the folder is given over to an argument in favor of the "Goodrich Wireless Tires" for fire engine equipment, in five chapters—each assigning a particular reason for the use of these tires. Briefly stated the reasons are as follows: that they are safest for firemen and bystanders; that they never cause delay; that they are designed for heavy service; that they permit the least vibration, and that they mean the lowest tire expense.

Another folder refers to the hygienic rubber-covered air mattress made by the company, which is particularly commended for hospital use. The third folder illustrates and describes rubber crutch tips—a very desirable device, in slippery weather, for unfortunate people who have to use crutches.

A fourth folder printed in chrome, green and black, describes the "Nugget" water-bottle, a Goodrich creation with patented lap-seam construction which fortifies the joints against weakness and leakage. A fifth leaflet entitled "Two Ounces of Prevention" is devoted to "Plastic," a substance made by the Goodrich company for quick tire repairing. This is made of pure rubber and readily incorporates with the substance of the tire, in such a way that it becomes practically invisible. This is sold in small cans and intended for such repairs as the motorist has to make while on the road. Three other folders describe three different varieties of syringes made by the Goodrich company. The whole series of folders may be commended, because of their artistic printing, convenient size for distribution, and the succinctness of the various descriptions.

The J. T. Baker Chemical Co., issued in July No. 5 of its little periodical publication entitled "The Chemist-Analyst." While the primary object of this publication is to call attention to the chemicals made by the company, the publishers with much wisdom, put a quantity of interesting chemical matter in it, to make it of value to chemists generally. In order to secure good contributions they offer prizes of from \$25 to \$10 for articles on specified chemical subjects. The July issue contains articles that took first and second prizes on "Copper Analysis."

"Rubber Clothing" is the name of a 32-page catalogue just issued by the Walpole Rubber Co., Boston, Massachusetts.

It is a finely printed book and contains a dozen or fifteen large cuts nearly full page size, showing the variety of raincoats which the company makes, including the "Zephyr" coat for city wear, policemen's coats, firemen's coats, drivers' coats, Raglan coats, auto coats, and coats for boys. Any dealer in rubber coats will find this catalogue interesting.

The Banigan Rubber Co. of Baltimore, Maryland, has issued a 52-page catalog of the rubber clothing sold by that company. This catalog may be commended particularly for its artistic cover, which is printed in olive green and black, on a coffee-tinted paper. It shows a tasteful design, brought out in strong relief by embossing. The catalog illustrates a great variety of rubber coats for men and women. The uninitiated will be surprised to find that there is such a variety of rubber coats. A few pages are devoted to other waterproof goods, like hats, leg-

gings and over-gaiters. The company describes itself as a "progressive rubber goods house." There is no implication, however, in this word "progressive" that orders received from followers of the Taft and Wilson tickets will not be gladly welcomed and promptly filled.

AN INTERESTING COURT DECISION.

AN extremely interesting decision was recently handed down by the Appellate Division of the Supreme Court of New York State, in an action brought by a rubber manufacturing company against the National Board of Fire Underwriters. The underwriters had made a motion to have certain irrelevant matter stricken out from the complaint. This had been granted in part, but not fully, by the lower court. The defendants then carried the case to the Appellate Division and moved to have the rest of the irrelevant matter stricken out. The motion was granted, and in the course of the judge's remarks he introduced by way of precedent some decidedly unique historical matter, that gave the case an unusual interest. Citations from the ancient law were as follows:

"Unnecessarily prolix and verbose pleadings in equity causes are not of modern invention. So early as 1566 a replication was filed in *Mylward vs. Welden* (Tothill 101) which so excited the indignation of the Chancellor that he ordered as follows: 'For as much as it now appeared to this court by report made by the now Lord Keeper, then Master of Rolls, upon consideration had of the plaintiff's replication according to an order of the 7th of May of anno 37 Reginae that the said replication doth amount to six score sheets of paper and yet all the matter thereof which is pertinent might have been well contrived in sixteen sheets of paper . . . and because his lordship is of opinion that such an abuse is not in any sort to be tolerated—proceedings of a malicious purpose to increase the defendant's charge and being fraught with such impertinent matter not fit for the court. It is therefore ordered that the Warden of the Fleet shall take the said Richard Mylward, alias Alexander, into his custody and shall bring him into Westminster Hall on Saturday next about 10 of the clock in the forenoon and then and there shall cut a hole in the midst of the same engrossed Replication which is delivered unto him for that purpose, and put the said Richard's head through the same hole, and so let the same Replication hang about his shoulders with the written side hanging outward, and then, the same so hanging, shall lead the said Richard bare-headed and barefaced round about Westminster Hall, whilst the Courts are sitting, and shall show him at the Bar of every of the three Courts within the Hall, and then shall take him back again to the Fleet, and keep him prisoner until he shall have paid £10 to her Majesty for a fine and 20 nobles to the defendant for his costs in respect of the aforesaid abuse.'

"Modern methods of dealing with such pleadings are less drastic, and confined to striking out the objectionable matter."

The full court concurred with the justice who rendered the decision in granting the defendant's motion.

AUTO EXPORTS INCREASING MOST RAPIDLY.

The most rapidly increasing exports of American manufactures during the last ten years have been in the automobile trade. In 1902 the value of automobile exports from the United States was less than one million dollars. In 1908 it had increased to five and one-quarter million, and in 1912 it will amount to twenty-eight million dollars. That is, it has increased twenty-eight times in ten years. Of this twenty-eight million dollars, two and one-half million is represented by tires.

Should be on every rubber man's desk—The Rubber Trade Directory of The World, 1912.

The Editor's Book Table.

INDEX OF PLANTS AT BOTANIC GARDENS, SINGAPORE. SINGAPORE, 1912. [8vo, 152 pages.]

IN no other branch of industry does there exist that close connection between scientific research and commercial enterprise, which links botany with rubber cultivation. The work of zealous scientists at botanic gardens and experimental stations, paves the way for that of the analysts and experts, who, at a later stage, carry on technical investigations.

While primarily intended for the purpose of facilitating the exchange of plants and seeds with other botanic stations throughout the world, and thus being subject to frequent changes and additions, the "Index of Plants," lately issued by the Botanic Gardens of Singapore, is intended as the foundation of a complete text-book on the subject. This object will be attained by yearly supplements, bringing the work as much as possible up to date.

The work starts with a list of 140 natural orders of plants, with their various divisions, subdivisions and habitats, occupying 130 pages. This is followed by a general index, classifying the preceding matter in alphabetical form; this portion of the book covering 19 pages and including over 2,000 references. The botanical wealth of the gardens is thus abundantly illustrated.

In order to facilitate the selection of economic plants, an appendix has been added, in which lists are given of the various plants, classified according to their economic characteristics. This appendix includes the following varieties:—edible fruits, 78; fiber and textile plants, etc., 24; spices, 9; scents, perfumery, etc., 7; oils, 18; gum resin, oleo-resin, etc., 6; dyes, tanning plants, etc., 15; and drugs, antiseptics, etc., 35. Last in order, but first in importance to rubber men, comes a list of 23 orders of rubber-producing plants. These include not only the better known varieties, such as *Hevea*, *Castilloa*, *Ficus*, *Kickxia*, *Manihot* and *Sapium*, but others, the mention of which will doubtless invite the attention of planters and scientists in all parts of the world.

The contents of the work will, in a future edition, be graphically illustrated by a "Guide to the Botanic Garden, Singapore," the plans in which will enable visitors to locate any desired variety.

Mr. J. W. Anderson, assistant curator of the Botanic Gardens, and compiler of the work, deserves much credit for the lucid manner in which he has accomplished his task. In the introduction, he acknowledges his indebtedness to Mr. H. N. Ridley for his assistance with endemic plants.

THE YEAR BOOK OF THE UNITED STATES DEPARTMENT OF AGRICULTURE for 1911. Washington: Government Printing Office, 1912. [8vo. 740 pp. Board covers.]

The Government is certainly generous in its latest agricultural year book. This is a volume aggregating 740 pages, and contains 67 full-page illustrations—nine of them very handsomely printed in colors. The book contains, besides a vast volume of valuable statistical matter, 31 brand new articles on agricultural topics, contributed by recognized experts, none of these articles having previously appeared in any printed form.

An interesting fact will be noticed from the figures compiled in this book as compared with the figures given in the Year Book for 1910; namely, that while the yields of various crops had fallen off in volume, they had, as a general thing, appreciated noticeably in value. For instance, the corn crop for 1911 was 355,000,000 bushels less than the year before, but its money value was \$180,000,000 more. This was owing to the higher prices obtained because of the smaller crop; which shows that a farmer may really gain where he appears to lose.

The book contains as a frontispiece the portrait of the late

S. A. Knapp, who died in April, 1911, and whose work in connection with the Government Department of Agriculture was of such great value—especially to the rice and cotton growers of the South.

The only reference to rubber contained in this book consists of several tables—quite complete and instructive—of the imports and exports of crude rubber to and from the United States. But we may confidently expect in some future Year Book that the progress of rubber culture in the Philippines and the Hawaiian Islands may be described, and possibly, if we were to look forward several years in the future, we might find a number of pages devoted to rubber growing in our Southern States. If Guayule grows wild in Texas in sufficient quantities to warrant its profitable collection, why should we not expect some day to be using United States grown rubber?

This is a book that every alert farmer ought to have, and he can undoubtedly get it by communicating with his Congressman, as out of the edition of 500,000 copies, 470,000 copies are at the disposal of our representatives of Washington.

RUBBER HAND STAMPS AND THE MANIPULATION OF INDIA Rubber. By T. O'Connor Sloane, A.M., E.M., PH.D. New York, 1912. The Norman W. Henley Publishing Co. [8vo, 168 pp. Price \$1.]

Using a rubber stamp has become such a practically automatic commercial habit, that the business man rarely stops to think how much research and scientific investigation was necessary before the stamp was ready for use.

In the above small volume Professor Sloane has told the story of the rubber stamp from a scientific as well as an industrial point of view, dealing in succession with the cultivation and collection of crude rubber as well as with the properties of unvulcanized and vulcanized rubber. The subject of rubber stamp and type making is then taken up in detail, from the outlines of moulding to the finished product, the descriptions being concise and lucid.

Rubber stamps, though forming a subject of interest, do not by any means exhaust the illustrations Professor Sloane gives of the manipulation of rubber; sheet rubber articles, toy balloons, pencil tips and other features of the rubber industry being also dealt with.

In view of the growing importance of the rubber stamp industry, this comprehensive treatise is a welcome addition to industrial and technical literature. The present volume is a new edition; the appreciation of the earlier editors being thus demonstrated.

The August issue of the magazine called "The Goodrich" consists of 32 pages, and contains a great deal of readable matter. To begin with, there is the opening chapter of an interesting story by Alexander P. Rogers, descriptive of a trip he took last summer up the Amazon, Madeira and Mamoré rivers to the point where the Guapore flows into the Mamoré, and thence up the Guapore, nearly a thousand miles, making all-told a river trip of nearly 3,000 miles. His description of the shooting of the rapids in the Madeira river is exceedingly interesting. The account is illustrated by a number of half-tone cuts made from photographs taken on the trip. Other articles worth reading are "A History of Pneumatic Tires," which begins in this number, and "Economical Tire Equipment," which has to do with truck tires. The publication is liberally illustrated, and contains enough interesting matter to insure its being kept, and also being read, by anyone who is concerned in any way with the production, sale, or use of tires.

New Rubber Goods in the Market.

FOR FOOTBALLS AND STRIKING BAGS.

IT would be a sad day for athletes if there were no rubber in the world. For instance without rubber there would be no football and without football half the colleges would close down entirely, and the other half shrink fifty per cent. Here's an interesting group of illustrations, showing the rubber envelopes or "bladders" for a football, a regular shaped striking bag and two pear-shaped striking bags. None of these can burst at the seam, no matter how hard a kick or a blow they receive, because there aren't any seam; they are made seamless.



SEAMLESS STRIKING BAG AND FOOTBALL BLADDERS.

They are made in both maroon and black and lined with white. The manufacturers also make basketball envelopes in the same seamless style. They make three sizes of football bladders, two sizes of basketball, three sizes of the regular striking bag, and two sizes of the pear-shaped striking bag. [The L. & M. Rubber Co., Carrollton, Ohio.]

WHAT TIRE CLIPS WILL DO.

Tire clips are of obvious convenience to motorists who are provident enough to carry along additional casings. These clips hook over the beads of the casing preventing spreading, and also preventing the inside tube from getting out. With these clips, the casing can be carried ready for instant use, with the inner tube in place, and partially inflated. The manufacturers state that a tire change can be made in five minutes with rims having but one flange or locking ring. No tools are required except a pair of hands. Where the rims have two rings on the detachable side, it requires a little longer. The clips which are here illustrated are sold in sets of twenty-five, which is enough to equip five tires. These clips are intended for tires to be used on wheels having quick detachable rims. [Draver Mfg. Co., Richmond, Indiana.]



TIRE CLIPS FOR EXTRA CASINGS.

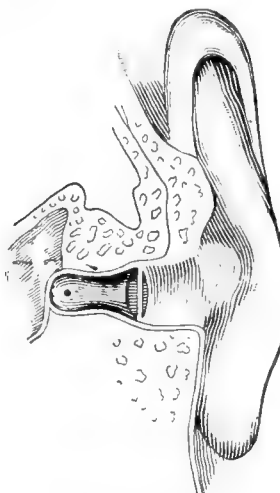
A HARD RUBBER INHALER FOR CATARRH.

The English woman who went home after a visit to this country and reported that "Americans are such charming people, it is really too bad that they all have catarrh," did not state the case with absolute accuracy, because all Americans do not have catarrh. But unfortunately a great many of them do. For all such, a hard rubber inhaler has been made which is shown in the accompanying cut; this cut being one-third the size of the article itself. The method of operation is simple. The cap, which, in the illustration appears at the bottom of the inhaler, is unscrewed, and a few drops of medicated liquid are poured in on some gauze placed inside the tubes. The cap is then replaced, the two prongs applied to the nostrils, and the fumes of the medicated liquid duly inhaled. If the patient has sore throat or a cough, the single end of the inhaler, with the cap removed, may be placed in the mouth, and inhalation be taken through the throat. [Windle Supply Co., Philadelphia, Pennsylvania.]



RUBBER MAKES THE DEAF HEAR.

It has long been known that rubber helps the lame to walk, because in the form of bandages it gives strength and vigor to defective limbs; and that it helps the blind to see, for in the form of hard rubber rims it holds the necessary lenses. But even more directly it makes the deaf hear.



WILSON'S IMPROVED COMMON-SENSE EAR-DRUM.

The accompanying illustration shows an ingenious little device, made of the finest Pará rubber, which fits into the auditory canal and gathers and conveys the sound waves to an impaired tympanum. The smaller illustration, showing this rubber ear-drum in the ear, is just the size of the device, the lower cut being magnified in order to give a better idea of its construction. It will be noticed that the outer edge flares a trifle so as to fit the flare of the canal of the ear at that point and also to receive all sound waves. The inner end has one or more perforations simply for the purpose of ventilation—to keep the ear from becoming uncomfortably hot. This rubber drum is so light and delicate that it can be worn without discomfort. Where the tympanum is impaired this rubber drum assists it in its work. Where it is destroyed it is claimed that it does the work of the natural drum to a considerable extent. It was invented by George H. Wilson, of Louisville, Kentucky, to meet his own necessities, as he was so unfortunate as to be extremely deaf.

In its earlier and cruder form it came on the market about 20 years ago. As shown above it is much improved over its earlier form. The cross piece which will be noticed in the lower cut is for the purpose of keeping the delicate rubber tube from collapsing. [Wilson Ear-Drum Co., Louisville, Kentucky.]

Should be on every rubber man's desk—The Rubber Trade Directory of The World. 1912.

A LEATHER SHOE TO SAVE THE TIRE.

On the human foot it is the custom to have a rubber over-shoe to save the leather shoe by keeping it dry, but in the Woodworth tread for automobile tires the case is reversed, for here we have a leather shoe that goes over the rubber shoe of the tire to protect and preserve it. This Woodworth tread



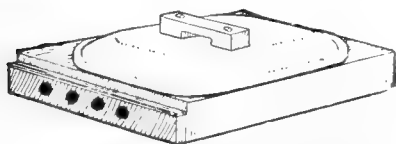
WOODWORTH TREAD.

consists of several layers of especially prepared leather, some inelastic fabric being interlaid between the pieces of leather, and all fastened together by a large number of steel rivets, the outside heads of which serve as studs, to increase the wear and to prevent skidding. This leather shoe is held on the rubber

tire by springs running along both edges, which are hooked together after the tread is put on the tire and thus serve to keep it in place. There is no rubber in this Woodworth tread, but its mission as a rubber preserver seems to entitle it to this mention. The accompanying cut will give an idea of its construction. [Leather Tire Goods Co., Niagara Falls, New York.]

THE DIAPHRAGM PNEUMATIC.

The Angelus Piano-Player, it is claimed, more closely resembles the human touch than that of any other automatic player. This is accomplished by means of a "Diaphragm Pneumatic," which, when in the act of striking, be-



DIAPHRAGM PNEUMATIC INFLATED FOR STRIKING

comes filled with air, giving a light, resilient touch, closely resembling that of the human fingers. Other players use a contrivance run by a bellows system that is

worked by an exhaust, and when a note strikes the air is completely withdrawn. [Wilcox & White Co., Meriden, Connecticut.]

THE SNORER TO BE EFFECTIVELY RUBBERED.

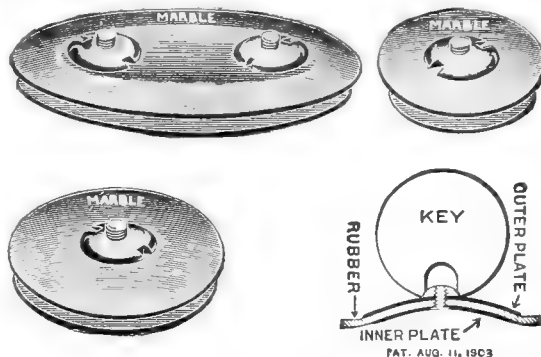
There are plenty of men who will not display the slightest interest when you tell them that the rubber industry now amounts to nearly half a billion dollars a year, and that in the United States alone its annual value is over \$200,000,000, who will become keenly interested when you tell them that some inventive genius has devised a little rubber contrivance that prevents all snoring.

This is a device made of soft wool, interwoven with rubber threads, that goes over the top of the head, down under the chin and is held in place by a band going around the back of the head. The softness of the wool and the elasticity of the rubber are intended to conduce to the comfort of the wearer, while the rubber in the band being slightly stretched when it goes under the chin, is intended to keep the snorer's mouth quietly and decently closed, and thus conduce much to the comfort of the wearer's neighbors.

City people whose bedroom windows open out on air-shafts on which many other bedroom windows also open, will be delighted to know that these snore-suppressors can be secured at 40 cents retail; so that at a little expense and with a discriminating distribution of these little devices, they may pass the night in peace and comfort.

MENDING HOLES IN RUBBER BOOTS.

If there is anything irritating in human experience, it is the sensation of the hunter or fisherman who has paid \$6 or \$7 for a pair of rubber boots, and then run a sharp point through the foot or the leg. Naturally he does not care to throw away these boots, and yet to wear them with the water coming through the puncture is not particularly agreeable.



Here is a small device which comes in various sizes, as shown by the accompanying cuts, that will relieve the wearer of the boots from his distress. It is called the "Easy-Quick" repairer, and consists of two concave plates which fasten together. The lower plate which goes inside of the punctured rubber has a threaded pivot which projects through a hole in the upper plate. The two are held together with a flush nut without the use of any cement or glue. The inner plate is so thin that it does not irritate the foot or the leg, and the repair can be made in a minute.

These repairers come in various sizes and cost only a few cents. A key to tighten the nut is supplied with them. [Marble Arms & Manufacturing Co., Gladstone, Michigan.]

"SIMPLEX" BREAST PUMP.

A new breast pump, thoroughly sanitary, has just been put on the market. It is of convenient size, and the glass is made to fit the breast comfortably. The reservoir is easily kept clean, and is so shaped that its interior can be reached by the finger. The rubber bulb is attached to the glass by a screw thread and can be easily removed for cleaning. This pump is absolutely new and promises to be much used owing to its simplicity in construction and its comfort in use. [Whitall Tatum Co., 46 Barclay street, New York.]



NEW USE FOR RUBBER HOSE.

New uses for rubber hose are being discovered every day. Here is one that bids fair to be employed extensively. The old system of removing old paint by scraping it off was exceedingly laborious and wasteful of time. That method has been superseded by the application of paint removers, in liquid form, which attack the oil which holds the paint to the surface. These paint removers can be applied by hand, but by the use of rubber hose they can be applied much more rapidly and easily. The liquid paint remover is put in a tank where it is kept under the pressure of compressed air. A pipe, the inner end of which is submerged in the remover, extends through the wall of the tank and is fitted to a rubber hose of any desired length, at the end of which there is a spray nozzle. When the governing valve is opened, the compressed air forces the liquid through the hose and nozzle, and it strikes the painted surface in the form of a spray.

News of the American Rubber Trade.

RAPID GROWTH OF THE FAULTLESS RUBBER CO.

AT the last annual meeting of the Faultless Rubber Co., Ashland, Ohio, held the last of July, it was voted to increase the capital stock from \$325,000 to \$1,000,000. The stockholders will receive a 60 per cent. dividend in stock on the old capitalization. Eight hundred shares of the new stock of the par value of \$80,000 will be set aside for sale to employees under favorable conditions. The balance of the increased stock will be held in the treasury.

The following officers were elected: T. W. Miller, president and treasurer; P. A. Myers, vice-president; I. L. Miller, secretary, and C. E. Campbell, general manager. These officers with C. E. Myers constitute the board of directors.

This company has enjoyed phenomenal growth. It was started five years ago with about fifty employees. It now employs nearly 400 people. Its plant has received constant additions during the last three years. The last addition is a large building 85 x 155 feet, to be used exclusively for dipped goods. It embodies every modern feature. One that may be cited is an installation which thoroughly washes and purifies the air and removes all fumes of gases. This system can purify 30,000 cubic feet of air per minute.

NEW YORK RUBBER RECLAIMING CO.'S NEW MEN.

The fact was mentioned in the August issue of THE INDIA RUBBER WORLD that William F. Askam, one of the oldest rubber reclaimers, had associated himself with the New York Rubber Reclaiming Co., New York City. He has rearranged the mill of this company and introduced a number of improvements. The company is turning out high-grade shoddy for the insulated wire trade.

Henry H. Marshall has also been secured by this company and will act as superintendent and general manager.

TWO NEW BUILDINGS FOR THE FISK RUBBER CO.

The Fisk Rubber Co. is making extensive additions to its plant in Chicopee Falls, Massachusetts, in order to take care of the increased demand for automobile tires, tubes and bicycle tires. The contracts have been let to the Fred T. Ley Co., of Springfield, for two buildings—one building 250 feet long, 90 feet wide, six stories and basement, and another building 200 feet long, 60 feet wide, four stories and basement. The necessary rubber machinery, boilers and engine for power plant, when installed, will increase the present capacity about 50 per cent. This extra capacity will necessitate the employment of 600 or 700 more workmen. The buildings are to be completed and machinery installed by November 1, 1912.

THE HARMER RUBBER RECLAIMING WORKS.

There has been a great improvement at the Harmer Rubber Reclaiming Works, East Millstone, New Jersey, since the change in management took place. The factory is running to its full capacity, and working nights. They have recently reconstructed one of their buildings, 105 x 126 and 50 ft. high, formerly used for storing purposes, into a separate department for reclaiming auto tire friction, and other fabricated scrap for the trade, and have built up an extensive business along this line.

The company's plant is centrally located between New York and Philadelphia, on the Millstone branch of the Pennsylvania Railroad. It stands on the right bank of the Raritan and Delaware Canal, and enjoys ideal shipping facilities, both by rail and water. The company generates its own electric current for

lighting, etc. A visitor at this plant finds a number of things worthy of note: The completeness and convenient arrangement of equipment; approved types of rubber-working machinery; modern well-lighted brick buildings, and last, the pains taken with the product in its manufacture. Careful attention to detail characterizes every stage of the work. Years of experience and a close study of the science of rubber reclamation have borne fruit in this modern plant.



THE FAULTLESS RUBBER CO.

THE REPUBLIC RUBBER CO. INCREASES CAPITAL.

At the special meeting called for August 1, the stockholders of The Republic Rubber Co. voted an increase of the authorized capital from \$4,000,000 to \$10,000,000. A number of extensions and improvements were discussed and the semi-annual statement was read, showing a large increase in the business of the company.

At the directors' meeting following, the board declared a special stock dividend of 35 per cent. to the common stockholders of record August 1. It is stated also that an offering of preferred stock will be forthcoming in a few months. The regular cash dividend at the rate of 2 per cent. per quarter was also declared by the directors.

MR. SPENCER TURNER TO BE MARRIED.

Mr. Spencer Turner, grandson of the late J. Spencer Turner, and son of Thomas M. Turner, of the Spencer Turner Co., New York City, will be married on September 14 at Pittsfield, Mass., to Miss Jessica Pomeroy Bishop, daughter of Mr. and Mrs. Henry W. Bishop of that place. The ceremony will be performed in St. Stephen's Episcopal Church and will be followed by a reception at Wiaka, the summer home of the bride's parents.

NEW INCORPORATIONS.

The Bloom Raincoat Co., August 16, 1912; under the laws of New York; authorized capital, \$5,000. Incorporators: Abraham Bloom, 111 Seventh street, New York; Morris Blumenfeld and Celia Blumenfeld, both of 161 Tompkins avenue, Brooklyn, New York. Location of principal office, New York. To manufacture rubber clothing.

The East Palestine Rubber Co., July 25, 1912; under the laws of Ohio; authorized capital, \$50,000. Incorporators: E. E. Jones, C. A. Oatsdean and O. L. Shumate. To manufacture automobiles and other vehicles and mechanical rubber goods.

Gardner-Hotte Sales Co., August 7, 1912; under the laws of New York; authorized capital, \$10,000. Incorporators: John J. Gardner, George and William E. Hotte, all of Buffalo, New York. Location of principal office, Buffalo, New York. To deal in automobiles, tires, etc.

Greenpoint Tire Repair Co., August 17, 1912; under the laws of New York; authorized capital, \$10,000. Incorporators: Charles L. Keller, 2 Jewel street, Brooklyn, New York, and Anna and John Kovacs, Jr., both of 36 Grand street, Brooklyn, New York. Location of principal office, Brooklyn, New York.

Hall Automatic Coupler Co., July 23, 1912; under the laws of New York; authorized capital, \$250,000. Incorporators: Lucius M. Hall, Sardinia, New York; Edward S. Hall, 123 Norwood avenue, Buffalo, New York, and Lamont Shutles, 128 Bird avenue, Buffalo, New York. Location of principal office, Buffalo, New York. To manufacture garden and fire hose couplings, etc.

A. H. Kasner Tire Co., August 9, 1912; under the laws of New York; authorized capital, \$10,000. Incorporators: Alexander H. and Hattie Kasner, both of 869 Eastern Parkway, and Antonio Massari, 1379 Sixty-seventh street, all of Brooklyn, New York. Location of principal office, New York. To deal in automobile tires, etc.

Kelly-Field Co., August 5, 1912; under the laws of New York; authorized capital, \$10,000. Incorporators: Charles F. U. Kelly, Racine, Wisconsin; Harry E. Field and J. L. Boisse, both of 2 Rector street, New York. Location of principal office, New York. To manufacture automobiles, tires, etc.

M. & M. Tire Co., July 31, 1912; under the laws of New Jersey; authorized capital, \$20,000. Incorporators: William McGinnis, 202 Academy street; Edgar W. Cresse, 39 Edgemere avenue, both of Trenton, New Jersey, and Walter A. Wood, Jenkintown, Pennsylvania. To manufacture, purchase, sell, etc., rubber boots, shoes and rubber of every description.

The Majestic Rubber Co., July 24, 1912; under the laws of Ohio; authorized capital, \$3,000,000. Incorporators: J. A. H. Myers, O. W. Baum and E. V. Christman. To manufacture, deal in and buy rubber goods.

Newmastic Company, August 12, 1912; under the laws of New York; authorized capital, \$250,000. Incorporators: Orrel A. Parker, 225 West End Avenue; Robert Weld, 625 West One Hundred and Fifty-sixth street, and Oliver H. Bartine, 135 East Forty-second street, all of New York. Location of principal office, New York. To manufacture rubber goods and tires.

O. & K. Rubber Co., August 1, 1912; under the laws of New York; authorized capital, \$5,000. Incorporators: Aaron Oschirin, 411 East Ninth street; Samuel H. Kaplan, 785 East One Hundred and Fifty-first street, and Benjamin Oschirin, 390 Broadway, all of New York.

Rubberine Tire Filling & Sales Co., August 12, 1912; under the laws of New York; authorized capital, \$500,000. Incorporators: James D. Bridges and J. Curtis Clarke, both of 233 West Fiftieth street, and George H. Davis, 146 East Thirty-second street, all of New York. To manufacture a tire filler called "Rubberine"—containing no rubber.

Rubber Specialties, Inc., August 1, 1912; under the laws of New York; authorized capital, \$30,000. Incorporators: William S. Pounds, 317 East Seventeenth street, Brooklyn, New York; Alfred C. Eggers and Ludwig T. Eggers, both of 440 East Nineteenth street, Brooklyn, New York. Location of principal office, New York. To deal in rubber goods, etc.

Standard Rubber Cement Co., August 1, 1912; under the laws of New York; authorized capital, \$100,000. Incorporators: Samuel A. and Carrie M. Berger, 56 East Eighty-seventh street, New York, and Philip Schoenfeld, 205 South Third street, Brooklyn, New York. Location of principal office, Brooklyn, New York. To manufacture rubber cement, glue, etc.

E. G. Stearns & Co., Inc., August 7, 1912; under the laws of Illinois; authorized capital, \$35,000. Incorporators: Cecil Barnes, Charles L. Cobb and John Early. To manufacture and sell rubber goods and kindred articles.

Syncru Rubber Co., August 3, 1912; under the laws of New York; authorized capital, \$1,000. Incorporators: Louis S. Dabo and Ignatius P. Mills, both of 22 Pine street, and Raphael Davis, 2 Rector street, all of New York. Location of principal office, New York. To manufacture rubber goods, etc.

The Stocker Rubber Co., July 25, 1912; under the laws of Ohio; authorized capital, \$10,000. Incorporators: A. D. Stocker, Ira J. Cooper and H. H. Bunner. To repair, buy, sell and deal in rubber tires and rubber merchandise of all kinds.

Tredvent Tire Co., August 17, 1912; under the laws of New York; authorized capital, \$100,000. Incorporators: Nathan A. and David A. Sterling, both of 126 West One Hundred and Twelfth street, New York, and Samuel Bing, 1451 Eastern Parkway, Brooklyn, New York.

TRADE NOTES.

For 31 years it has been the custom of The B. F. Goodrich Co. to provide an outing for its employees on the first Saturday of August. This year it was found impossible to obtain anything like adequate space or facilities in the vicinity of Akron for the usual entertainment of the 15,000 employees of the combined companies. Consequently the regular procedure was changed this year into a general holiday for the employees of the Goodrich-Diamond companies, each of whom was given an envelope containing a dollar, with the privilege of enjoying the day in accordance with individual taste.

The Turner, Vaughn & Taylor Co., Cuyahoga Falls, are installing a complete equipment of wire-drawing machinery in the plant of the National India Rubber Co., Bristol, Rhode Island. The company first named has been making a rubber washer of recognized standard for many years and has now entered upon the manufacture of a general line of rubber machinery.

Holders of the \$1,816,000 outstanding 4 per cent. bonds and of the \$250,000 "purchase bonds" of the Tehuantepec Rubber Culture Co. have organized a protective committee to look after their interests. It consists of Victor Tyler, Louis Kunz, H. M. Barfield and J. M. Kirby.

The Miner Rubber Co., Limited, of Granby, Quebec, is putting the Foster non-slip friction-plug heel on all its solid heel shoes; such as its lumbermen's line.

The Miller Rubber Co., of Akron, Ohio, has received a permit for the construction of a new building to be made of brick and steel, and to be used as a mixing room.

The United States Rubber Co.'s subscription receipts full paid, for first preferred stock have been listed on the New York Stock Exchange

CAPTAIN APPLETON AND THE ANCIENTS.

The August number of THE INDIA RUBBER WORLD contained a mention of the fact that on July 15 a detachment of fifty members of the Ancient and Honorable Artillery Company of Boston, under the command of Captain Francis H. Appleton had been received by King George, and reviewed on the Buckingham Palace grounds and that the company had been photographed with Captain Appleton between the King and Ambassador Whitelaw Reid.

Here is a reproduction of the famous photograph showing the Captain, the King and the Ambassador, with the other members of the famous Boston company grouped around them. No member of the detachment that visited London will ever forget that occasion. They were there six days, and they were six days full of official and social activity.

On the night of the day on which they reached London, the Honourable Artillery Company of London gave them a dinner in the old historic Armoury House. The Earl of Denbigh, in command of the London Company, acted as chairman and delivered a wonderful address of welcome—full of wit and humor and good-fellowship. But Captain Appleton did not suffer at all by comparison when he arose to respond. His speech was constantly applauded—and particularly the following sentiments:

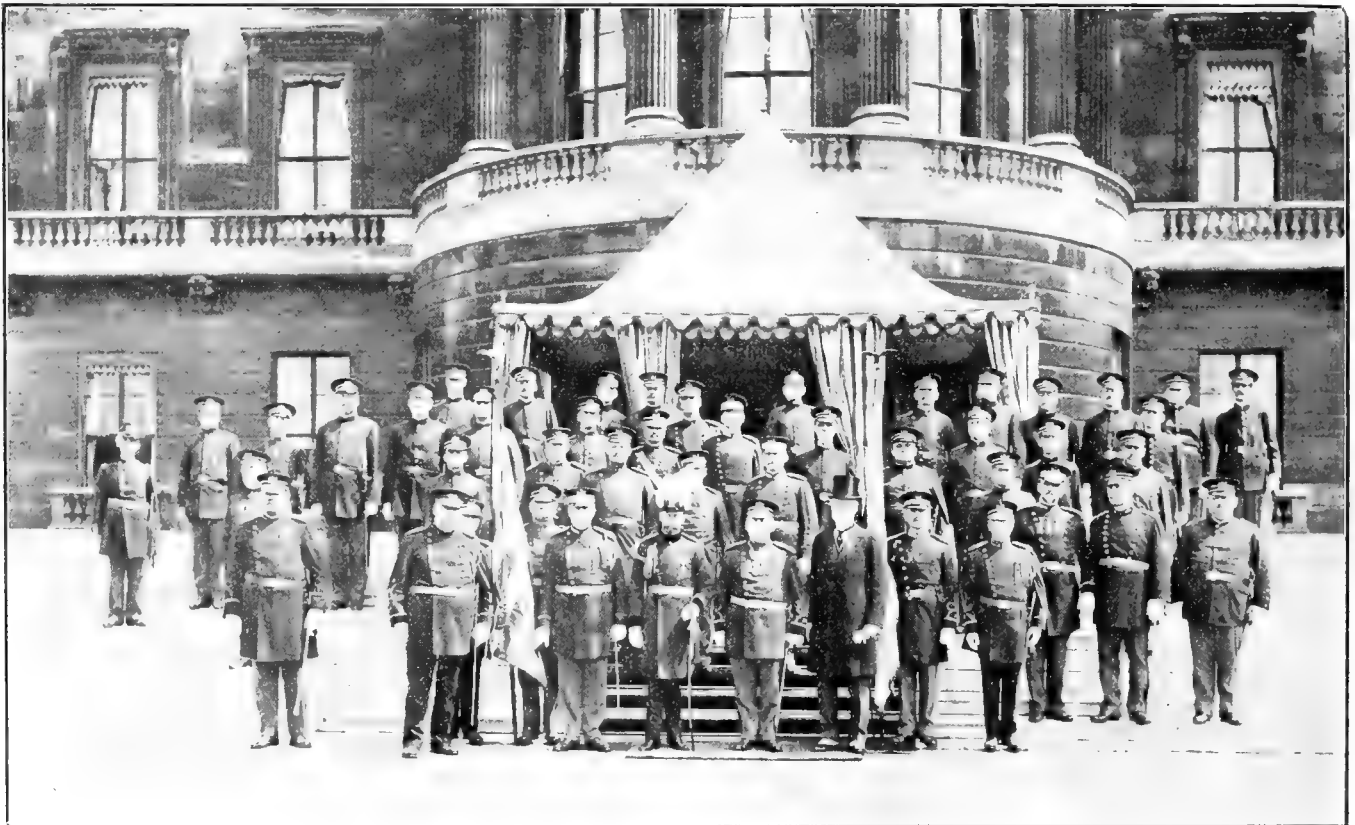
"We have, therefore, so much in common that it was inevitable that we should come to be close friends, and we of the Massachusetts Corps treasure the greeting of your late lamented King, who, as Prince of Wales, said at Marlborough House: 'We have received you not as foreigners, but as those belonging to ourselves.' It is my earnest wish that this spirit of comradeship may always endure, and that the red cross of St. George

On the occasion of the reception of the Boston company at Buckingham Palace, when the King reviewed the visitors on the



CAPT. FRANCIS H. APPLETON.

parade grounds, he was exceedingly cordial, as may be judged from a few sentences taken from his address: "Last year I had the pleasure of seeing Captain Appleton, when he came as



KING GEORGE V. AND THE BOSTON ANCIENTS AT BUCKINGHAM PALACE.

and our own starry banner (applause) may ever be flying together to the breezes of heaven as the symbols of justice and might, and the tokens of an everlasting friendship."

one of the representatives of the corps, to announce my election as Honourary Member in succession to King Edward VII. To-day I welcome him and you, the representatives of the ancient

and distinguished corps, which in 1896 sent a delegation to this country, and seven years later extended such unbounded hospitality to the Honourable Artillery Company on the occasion of their memorable visit to Boston."

The Massachusetts warriors made such an impression in London and on the Continent, and so much was said about them that, when they returned to their home city, early in August, the entire population of Boston turned out and received them like victors home from a triumphant tour of conquest.

PERSONAL MENTION.

Walter Fischer, M. A., formerly with the United States Department of Agriculture, and more recently Director of the Pará Agricultural Experiment Station, is now visiting the United States, his address being Vienna, Virginia. He has acted as consulting expert and technical adviser for many rubber and other plantations in North Brazil, and is considered an authority on plantation matters in that part of the world.

Speculation is already rife regarding the selection of a United States senator from Rhode Island, to succeed Senator Wetmore, who will retire at the end of his present term. Judge Le Baron Colt, brother of Colonel S. P. Colt, president of the United States Rubber Co., is most prominently mentioned for that position.

F. O. Nelson, manager of the Los Angeles branch of the Diamond Rubber Co., of New York, has resigned after eleven years of service with the company to enter business for himself. W. J. Colt, manager of the Diamond Spokane branch, has been given charge of the Los Angeles branch, which is now one of the largest Diamond branches in the west.

A. H. Marks, the vice-president of The B. F. Goodrich Co., Akron, Ohio, recently underwent an operation for appendicitis at a hospital in Cleveland. The operation was eminently successful, and Mr. Marks' recovery very rapid.

Miss Helen Roebing, daughter of Charles A. Roebing, of the John A. Roebing's Sons Co., Trenton, New Jersey, will be married on October 16, to Carroll Sergeant Tyson, of Philadelphia.

RUBBER MEN ON THEIR VACATION.

The various officials connected with the United States Rubber Co. devoted most of August to purposes of relaxation, and some of them have not yet returned to the grind of office cares.

Col. Samuel P. Colt, president of the company, is expected home from Europe on September 3.

Samuel Norris, the secretary, sailed on August 17 for a European trip.

H. E. Sawyer, the general manager, spent his vacation, as usual, at Bretton Woods, in the White Mountains.

E. R. Rice, the manager of sales, has been in Europe for a number of weeks, and is not expected home until the 23rd of September.

H. B. Hubbard, the auditor, devoted the first three weeks of August to touring in his new car through interesting parts of New England; and John D. Carberry, assistant secretary, spent the greater part of his vacation in the same way, covering points of interest in northern New York and Vermont.

James B. Ford, the treasurer and first vice-president, is cruising on his schooner yacht "Katrina" with a party of friends.

Lester Leland, second vice-president, has also taken to yachting and has spent most of the summer in a yacht which he chartered early in the season.

W. S. Ballou, a member of the executive committee and president of the Woonsocket Rubber Co., has rusticated chiefly among the New England mountains.

TRADE NEWS NOTES.

The directors of the Boston Woven Hose & Rubber Co. have declared a quarterly dividend of two dollars and a half (\$2.50) per share on the common stock, payable September 16, 1912, to stockholders of record September 5, 1912.

The Firestone Tire & Rubber Co. has opened a branch at Bedford Avenue and Hancock Street, Brooklyn, New York, with W. G. Bedford, as manager.

The Swinehart Rubber Co., Akron, Ohio, has declared a quarterly dividend of 1½ per cent. on its capital stock. This is a reduction of ½ per cent. for the quarter, the rate being reduced from 8 per cent. to 6 per cent. per annum.

The Household Rubber Co. store in Youngstown, Ohio, has been purchased by the Auto & Cycle Supply Co.

The Indianapolis Fire Department is using, on its hook and ladder trucks some of the large sized "Nobby tread" tires 8 x 38, made by the United States Tire Co. A number of the sightseeing wagons in the large eastern cities are also using these tires.

The Walpole Rubber Co., which has recently started to operate a second plant at Foxboro, Massachusetts, has purchased 18 acres of land not far from the factory, on which the company intends to build homes for its employees.

The general executive offices of the United States Rubber Company have been moved to the company's new building at 1784 Broadway, at the corner of Fifty-eighth street, but the transfer offices will remain for the present at 42 Broadway.

The Fisk Rubber Co. has notified its employees that it has provided for accidents to employees as required under a recent amendment to the Massachusetts law. The notice is as follows: "All persons under contract or hire with the Fisk Rubber Co. are hereby notified that the Fisk Rubber Co. has provided for payment to injured employees of the compensation provided for by Chapter 751 of the Acts of 1911, and all acts in addition thereto and amendments thereof."

The well-known tire men, H. E. Field, president of the Thomas B. Jeffery Co., and C. F. U. Kelly, have joined to form a new company called the Kelly-Field Co., which will handle the output of tires manufactured by the Lee Tire and Rubber Co., Conshohocken, Pennsylvania. The company has opened a New York office in the Buick Building, 1737 Broadway.

The Tanney Rubber Co., 111 West Seventeenth street, New York, is engaged in the manufacture of raincoats, and rubber goods for plumbers.

WHERE "ALBA" WHITING EXCELS.

The Industrial Chemical Co., 200 Fifth avenue, New York, has been very successful with its "Alba" whiting, as it is now used by some of the largest rubber companies in the country. This whiting has three distinguishing qualities—its superior whiteness, its exceptional fineness, and the fact that it is neutral, and is so guaranteed by the company. Because of its unusual whiteness it is used by some manufacturers as a substitute for expensive zinc in the making of white tubing, jar rings and other white goods. The same company sells a lamp black which tests as high as 97 per cent. in carbon.

BISULPHIDE OF CARBON FROM EUROPE.

Owing to the fact that bisulphide of carbon is exceedingly inflammable, it was not possible, up to quite recently, to get a freight rate on it; but Mr. Bamberger, American manager for Meyer Cohn, of Hanover, Germany, announces that he is now in a position to import this product. As this article is quite scarce in this country many rubber manufacturers will doubtless be glad to get this information.

ALFRED A. ANDREWS.

The death of Alfred Augustus Andrews, president of the Winnipeg Rubber Co., and prominent in Winnipeg business and social circles, occurred August 2 at Chicago, where he had undergone an operation on the mastoid gland. Mr. Andrews was born at North Augusta, Ontario, 47 years ago. He went to Winnipeg in 1880.

TRADE NEWS NOTES.

The James Manufacturing Co., Cleveland, Ohio, producers of the "Gyro" Heel, have recently reorganized, resulting in substantially increased facilities. The offices of the company are located in the Rockefeller Building.

W. G. Brown, distributor of rubber manufacturers' supplies, with headquarters in the Provident Bank Building, Cincinnati, Ohio, is extensively interested in philanthropic work, and, in his capacity as buyer for the Santa Claus Committee, has already laid in a large supply of toys, to be distributed among poor children at Christmas time.

The Portage Rubber Co., Barberton, Ohio, will immediately commence building an addition to its present factory, the output of which now exceeds existing facilities.

The Raven Mining Co., Chicago, is in process of increasing its shipping facilities, and Lawrence F. Lindley, manager of the company, is now in Utah, where the mines are located, looking over the situation.

B. B. Felix, of the Featheredge Rubber Sponge Co., of Chicago, gave a small and very charming dinner to a few friends at the Bismarck Gardens on the evening of Wednesday, the 14th of August. It was a most delightful affair.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks, ending August 24:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend (special), July 31, 1912—1%.

Week August 3	Sales	8,000 shares	High 53 $\frac{1}{4}$	Low 52
Week August 10	Sales	1,300 shares	High 52 $\frac{1}{2}$	Low 51 $\frac{1}{4}$
Week August 17	Sales	3,600 shares	High 53	Low 51 $\frac{1}{8}$
Week August 24	Sales	1,590 shares	High 51 $\frac{7}{8}$	Low 51 $\frac{1}{8}$
For the year—High, 67 $\frac{1}{2}$, May 21; Low, 45 $\frac{1}{4}$, February 1.				
Last year—High, 48 $\frac{1}{2}$; Low, 30 $\frac{1}{2}$.				

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, July 31, 1912—2%.

Week August 3	Sales	3,919 shares	High 108 $\frac{1}{2}$	Low 106
Week August 10	Sales	3,100 shares	High 108 $\frac{1}{2}$	Low 107 $\frac{3}{8}$
Week August 17	Sales	2,050 shares	High 108 $\frac{7}{8}$	Low 108 $\frac{1}{2}$
Week August 24	Sales	845 shares	High 108 $\frac{3}{4}$	Low 108 $\frac{5}{8}$
For the year—High, 116, May 20; Low, 105 $\frac{5}{8}$, July 25.				
Last year—High, 115 $\frac{1}{2}$; Low, 104.				

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, July 31, 1912—1 $\frac{1}{2}$ %.

Week August 3	Sales	— shares	High —	Low —
Week August 10	Sales	— shares	High —	Low —
Week August 17	Sales	315 shares	High 80	Low 78 $\frac{1}{2}$
Week August 24	Sales	200 shares	High 79	Low 78 $\frac{1}{2}$
For the year—High, 85 $\frac{1}{2}$, May 21; Low, 75, January 23.				
Last year—High, 79; Low, 66.				

SIX PER CENT. TRUST GOLD BONDS, \$18,000,000.

Outstanding of the 1908 issue of \$20,000,000.

Week August 3	Sales	42 bonds	High 104 $\frac{1}{4}$	Low 104
Week August 10	Sales	11,000 bonds	High 104 $\frac{1}{4}$	Low 104 $\frac{1}{8}$
Week August 17	Sales	42 bonds	High 104 $\frac{1}{4}$	Low 104 $\frac{1}{8}$
Week August 24	Sales	— bonds	High —	Low —
For the year—High, 105, February 24; Low, 103 $\frac{3}{4}$, January 6.				
Last year—High, 105; Low, 101 $\frac{1}{4}$.				

RIGHTS.

Week August 3	Sales	160 Rights	High $\frac{5}{8}$	Low $\frac{5}{8}$
Week August 10	Sales	800 Rights	High $\frac{3}{4}$	Low $\frac{3}{4}$
Week August 17	Sales	— Rights	High —	Low —
Week August 24	Sales	— Rights	High —	Low —
For the year—High, $\frac{3}{4}$, August 10; Low, 7/16, July 26.				

An American Consul reports (No. 9186) that a business firm in his district in Europe is desirous of securing offers from manufacturers of hard rubber. The firm uses a large quantity of this material for making fountain pens.

TRADE NOTES.

A special meeting of the stockholders of the Goodyear Tire and Rubber Co. will be held September 9 to vote on proposed changes in the company's constitution relative to its preferred stock issue, including the annual retirement after 1915.

The Lee Tire and Rubber Co., of Conshohocken, Pennsylvania, has filed notice of increase of its capital from \$1,200,000 to \$1,600,000 for the purpose of extending the company's business.

The manufacturers Rubber Co., of Philadelphia, Pennsylvania, has declared a regular quarterly dividend of 1 $\frac{1}{2}$ per cent. on the preferred stock, payable August 31 to stock of record August 24.

The work of drawing copper wire in the new wire plant at the factory of the National India Rubber Co. was begun August 21. It is expected that the manufacture of wire will later require an increased force of workers.

The Majestic Rubber Co., Akron, Ohio, has recently been incorporated for the purpose of manufacturing, buying and selling rubber sundries and specialties. Among their specialties are finger cots and toe cots.

The Automatic Coupler Co., recently organized in Buffalo, New York, will manufacture and sell the Hall Automatic Couplers for fire and garden hose, and any other sort of hose where couplers are used. The company expects to build and equip its own factory in the near future.

Alexander H. Kasner is president of the A. H. Kasner Tire Co., recently incorporated to deal in automobile tires, with an office at 111 Chambers street, New York.

The Indiana Rubber and Insulated Wire Co., Jonesboro, Indiana, is manufacturing three styles of automobile-tire casings, namely, the "Wabash," a plain tread, guaranteed for 2,000 miles; the "Indiana," also a plain tread with a 3,500-mile guarantee, and a Traction Tread, non-skid tire, guaranteed for 3,500 miles.

The Seibach Rubber Co., a Massachusetts corporation, manufacturing rubber tires at 404 Columbus avenue, Boston, assigned August 6 to its treasurer, D. B. Smith, and Walter Powers, of Cambridge.

The Kleinert Rubber Co. will increase its plant in Long Island by the erection of a brick addition at Eighteenth street, at the corner of Fifth avenue, College Point.

VEREIN DEUTSCHER CHEMIKER.

The New York section of the Verein Deutscher Chemiker intends to celebrate the 25th anniversary of the parent society on Monday, September 2, next. At ten o'clock in the morning a business meeting with lectures will be held at Havemeyer Hall, Columbia University, New York. The lectures will be delivered by Dr. F. W. Frerichs and Dr. F. Raschig. At one p. m. there will be a lunch at the Claremont, and in the evening the ladies of the party will attend the theater and later a collation at the Ritz-Carlton, while the men will attend a Kommerz at the building of the Arion Society, Fifty-ninth street and Park avenue.

A business man in a Mediterranean country informs an American consulate (Consular Report, No. 9319) that he desires to be placed in communication with American shippers of asbestos. He is particularly anxious to secure the kind and quality used in stereotyping.

According to Consular Report No. 8947, a business man in a European country desires to be put in communication with American manufacturers of rubberoid with a view to representing them locally. He is of the opinion that it could be largely introduced for roofing and bath-room flooring.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED JULY 2, 1912.

- N**O. 1,030,861. Foot and ankle brace. F. R. Anderson, Providence, R. I.
 1,030,893. Elastic fabric. W. Kops, New York.
 1,030,895. Elastic fabric. W. Kops, New York.
 1,030,952. Art of boot and shoe making. F. W. Ward, South Framingham, Mass., assignor to United Shoe Machinery Co., Paterson, N. J.
 1,031,007. Siphon. E. M. Johnson, Jersey City, N. J.
 1,031,116. Toy. R. H. Hazard, Washington, D. C.
 1,031,174. Wheel. S. C. Fregoso, Helensburgh, Scotland.
 1,031,176. Combined nozzle sprayer and sprinkler. A. D. Gilpin, Lincoln, Kan.
 1,031,182. Safety unwinder and automatic cutting device. F. S. Hoag, Kinderhook, N. Y.
 1,031,235. Automobile wheel rim. P. B. Bosworth, assignor to The Firestone Tire & Rubber Co.—both of Akron, Ohio.
 1,031,236. Vehicle wheel rim. P. B. Bosworth, assignor to The Firestone Tire & Rubber Co.—both of Akron, Ohio.
 1,031,259. Demountable rim for automobile or other wheels. M. Halfpenny, Pontiac, Mich.
 1,031,291. Pressure governor. G. M. Richards, assignor to M. A. Richards—both of Erie, Pa.
 1,031,307. Adjustable veil. L. J. Wolfe, Waltham, Mass.
 1,031,320. Projectile. J. H. Brown, West Hoboken, N. J.
 1,031,341. Vehicle wheel. W. L. Howard, Trenton, N. J.
 1,031,436. Spring tire. T. G. Russell, Lyndhurst, England.
 1,031,446. Bottle stopper. K. H. Hoffman, Winthrop, Md.
 1,031,465. Sheet carrier for printing presses. A. L. Peno, Chicago, Ill.
 1,031,469. Tire shoe support. H. W. Roberts, Allentown, Pa.
 1,031,491. Tire wrapping and unwrapping machine. J. W. Thropp, Trenton, N. J.
 1,031,523. Tire. Kelley Chambers, Elkmont Springs, Tenn.
 1,031,530. Spring tire for vehicle wheels. M. E. Courtney, Fair Play, Mo.
 1,031,533. Dental appliance. W. F. Davison, Richmond, Va.
 1,031,613. Process for producing coats. F. A. Antoni, Cologne, Germany, assignor to J. Wahlen, Cologne-Ehrenfeld, Germany.
 1,031,661. Retaining device for printing surfaces. H. C. Osborn, assignor to The American Multigraph Co.—both of Cleveland, Ohio.
 1,031,671. Core for resilient objects. W. Barbour, Glasgow, Scotland.

Trade Marks.

- 57,326. The Republic Rubber Co., Youngstown, Ohio. Portion of tire with representations of doves. For pneumatic tires.
 63,567. The American Steel & Wire Co. of New Jersey, Hoboken, N. J. The word *Americore*. For rubber covered wire.

ISSUED JULY 9, 1912.

- 1,031,685. Pneumatic tire. W. H. Burritt, St. Louis, Mo.
 1,031,687. Spring wheel. W. N. Carroll and J. C. Griffin, Nashville, Tenn.
 1,031,720. Nursing bottle nipple. B. S. Lacy, Dubuque, Iowa.
 1,031,763. Wheel for motor vehicles. F. O. Woodland, Worcester, Mass.
 1,031,856. Tire. F. G. Kollenberg, assignor to E. Little—both of Owensboro, Ky.
 1,031,979. Tire. J. A. Bowden, Los Angeles, Cal.
 1,031,983. Core for manufacturing pneumatic tire shoes. W. T. Childs, assignor to one-half to F. Nolte and one-half to M. D. Kuhlke—all of Akron, Ohio.
 1,032,125. Vehicle wheel. F. D. Dorsey, New York, assignor to Amos Woebler, Davenport, Iowa.
 1,032,273. Weather strip. W. Butler, Avard, Okla.
 1,032,286. Wheel rim. C. F. Jenkins, Washington, D. C.

Design.

- 42,772. Elastic tire for vehicles. W. F. Pfeiffer, assignor to The Miller Rubber Co.—both of Akron, Ohio.

Trade Mark.

- 63,443. Electric Hose & Rubber Co., Wilmington, Del. The word *Supero*. For rubber hose.

ISSUED JULY 16, 1912.

- 1,032,428. Process for the industrial manufacture of artificial rubber. G. Reynaud, Paris, France.
 1,032,518. Nipple shield. E. P. Thieringer, New York.
 1,032,519. Hose coupling. J. M. Towne, East Orange, assignor to The Safety Car Heating & Lighting Co.—both of New Jersey.
 1,032,544. Vehicle tire. L. R. R. Hess, Joliet, and A. S. Burdick, Lockport, Ill., assignors to S. J. Drew, Joliet, Ill.
 1,032,579. Vehicle tire. H. M. Ambler, Philadelphia, Pa.
 1,032,626. Manufacture of rubber shoes, boots and the like. A. Schulze, assignor to J. C. Pennie—both of Washington, D. C.
 1,032,640. Rubber sole for shoes and the like. F. Wette, Koblenz, Germany.

- 1,032,730. Elastic wheel. H. G. Baldwin, San Francisco, Cal.
 1,032,732. Apparatus for separating particles of rubber from materials with which they are commingled. W. S. Blaine, Torreon, Mexico, assignor to Intercontinental Rubber Co., New York.
 1,032,733. Method of separating particles of rubber from materials with which they are commingled. W. S. Blaine, Torreon, Mexico, assignor to Intercontinental Rubber Co., New York.
 1,032,757. Dual tire for auto trucks. P. Jones, Metuchen, N. J.
 1,032,761. Rubber packed pipe couplings. F. A. Miller, assignor to S. R. Dresser Mfg. Co.—both of Bradford, Pa.
 1,032,955. Puncture proof inner casing for pneumatic tires. T. F. Shields and W. R. Bolter, Lowell, Mich.
 1,032,977. Cushion tire. D. A. York, North Grove, Ind.
 1,032,991. Tire. C. T. Coates, St. Louis, Mo.
 1,032,010. Manufacture of pneumatic cushioning devices for the elastic suspension of road vehicles. L. Harris, London, England.

Trade Marks.

- 48,793. Vacumit-Gesellschaft M. B. H., Vienna, Austria. The word *Vacumit*. For a substitute for rubber.
 56,042. The No-Air Tire Compound Co., Kansas City, Mo. Tire encircling the words The No-Air Tire Compound Co. For tire filling.
 60,324. The Star Rubber Co., Akron, Ohio. The word *Nepto*. For rubber gloves and bath caps.
 60,326. The Star Rubber Co., Akron, Ohio. The word *Luna*. For rubber gloves and bath caps.
 60,328. The Star Rubber Co., Akron, Ohio. The word *Veno*. For rubber gloves and bath caps.

ISSUED JULY 23, 1912.

- 1,033,179. Process of producing piperylene. L. P. Kyriakides and R. B. Earle, assignors to Hood Rubber Co.—both of Boston, Mass.
 1,033,180. Process of producing isoprene. L. P. Kyriakides and R. B. Earle, assignors to Hood Rubber Co.—both of Boston, Mass.
 1,033,229. Tire for vehicles. J. P. Clare, Stratham, N. H.
 1,033,230. Process of making tires for vehicles. J. P. Clare, Stratham, N. H.
 1,033,315. Cushion shoe for horses. W. B. Harrell, Baldwin, Fla.
 1,033,327. Process of producing erythrene. L. P. Kyriakides and R. B. Earle, assignors to Hood Rubber Co.—both of Boston, Mass.
 1,033,328. Process of producing dimethyl-butadiene. L. P. Kyriakides and R. B. Earle, assignors to Hood Rubber Co.—both of Boston, Mass.
 1,033,513. Vehicle tire. A. Aebli, Milwaukee, Wis.
 1,033,635. Block tire. W. L. R. Sweeney, assignor to M. S. M. Sweeney—both of Spartanburg, S. C.
 1,033,686. Detachable heel. G. Evans, Toronto, Ontario, Canada.
 1,033,730. Self-sealing bottle stopper. W. G. Peacock, assignor to The Perfection Bottle Stopper Co.—both of Chicago, Ill.
 1,033,741. Armored tread for pneumatic tires. B. Sims, Valley Spring, Texas.

Trade Mark.

- 60,712. The Star Rubber Co., Akron, Ohio. The word *Marco*. For water bottles, etc.

ISSUED JULY 30, 1912.

- 1,033,819. Dental syringe. G. M. McMann, Detroit, Mich.
 1,033,944. Vehicle wheel. T. H. Rushton, Grimsby, England.
 1,034,175. Shoe attachment. E. R. Carey and G. G. Condon, Denver, Col., assignors to Central Novelty Manufacturing Co., Chicago, Ill.
 1,034,226. Garment supporter. T. N. Figuers, Jr., Columbia, Tenn.
 1,034,372. Apparatus for making tires. C. H. Semple, Trenton, N. J.
 1,034,305. Detachable rim for carriage wheels. L. J. C. G. Dehais, Paris, France.

Trade Mark.

- 63,505. Hood Rubber Co., Boston, Mass. Picture of boot top. For rubber boots, shoes, etc.

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1911.

*Denotes Patents for American Inventions.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 3, 1912.]

- 6,023. Air doors for mines. S. Griffiths, 24 John street, Treharris, Glamorganshire.
 6,031. Surgical syringes. J. L. McLean, 11 Argyle Terrace, Edinburgh.
 6,052. Protectors for exposed vehicle seats. J. W. Chapman, 24 Weymouth Dwellings, New Kent Road, and P. Wolstenholme, 41 Little Albany street, Regent's Park—both in London.
 6,096. Self-filling pens. H. van der Weyde, 22 Temple Fortune Hill, Hampstead Garden Suburb, London.
 6,126. Golf bags. G. Warnkess, 11 Dunlop street, Glasgow.
 6,153. Propellers for aerial machines. E. von Bernd, Bergstrasse, Baden, near Vienna.
 *6,156. Temperature alarms. A. Goldstein, 114 Liberty street, New York, U. S. A.
 6,185. Artificial backings for furs and furriery. H. Marche, Fourmies, Nord, France.

- 6,233. Punctureless apparatus for closing tires. W. E. Sturgess, Narborough Road, Leicester.
- 6,269. Pneumatic apparatus for valves. A. Purser, 1 St. Mary's Place, Stamford, Lincolnshire.
- 6,282. Fire extinguishing. W. F. Cooper, Cooper Research Laboratories, Watford, Hertfordshire.
- 6,312. Dispensing liquids. M. F. D. M. Vigneron, Magnots-Moulins, Allier, France.
- 6,389. Spring wheels with rubber ring and like cushions. H. Lotte, 4 Rue Pascal Bourcy, St. Jean d'Angely, Charente Inferieure, France.
- 6,405. Washing plates, dishes, etc. F. Staines, 38 Buckingham Palace Road, London.
- 6,415. Thermostats. Soc. Francaise des Wagons Aerothermiques, 20 Rue du Pont Neuf, Paris.
- 6,429. Phenol-formaldehyde condensation products. Knoll & Co., Ludwigshafen-on-Rhine, Germany.
- 6,430. Phenol-formaldehyde condensation products. Knoll & Co., Ludwigshafen-on-Rhine, Germany.
- 6,444. Purifying india rubber. A. Schleiffer, 10 Fichtegasse, Vienna.
- 6,484. Squeegees, etc. J. H. Goudoever, 31 Clifton street, Hulme Hall Lane, Manchester.
- 6,540. Synthetic caoutchouc. Farbenfabriken Vorm. F. Bayer & Co., 217 Koenigstrasse, Elberfeld, Germany.
- 6,541. Gas tubes. F. H. Rogers, Broad Sanctuary Chambers, Westminster.
- 6,572. Vacuum cleaning apparatus. B. H. Webb, 82 Mill street—both in Kidderminster.
- 6,585. Vehicle wheels. T. Dunn, 56 Moorgate street, London.
- 6,603. Balls. H. G. Poole, 53 Kent Road, Gravesend, Kent, and others.
- 6,635. Rubber springs for aeroplanes. H. A. A. J. Lelarge, 7 Avenue de Trivaux, Chalais-Meudon, Seine-et-Oise, France.
- 6,638. Undergarments. J. Elkan, 21 Addle street, Wood street, London, E. C.
- 6,639. Jackets and covers for tires. E. H. Jones, 314 Euston Road, London.
- 6,642. Synthetic caoutchouc. Farbenfabriken vorm. F. Bayer & Co., 217 Koenigstrasse, Elberfeld, Germany.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 10, 1912.]

- *6,793. Buoyant wearing apparel. R. L. F. Berry, Miller Place, New York, U. S. A.
- 6,842. Vehicle wheels. J. McLeod, 366 High street, St. Kilda, Victoria, Australia.
- 6,848. Cow milkers. E. A. Dehmer, Villa Annero, Grondal, Liljeholmen, near Stockholm, and A. E. Nordenlund, 48 Handtverkaregaten, Stockholm.
- 6,858. Coagulation of india rubber. R. Derry, Botanic Gardens, Singapore.
- 6,876. Submarine signals. A. Whalley, 19 Croxteth Grove, Liverpool.
- 6,929. Safety suspending apparatus for mine. F. W. Bentley, Box 4648, Johannesburg, Transvaal, and K. Kapernick, 28 Mittelstrasse, Rathenow, Germany.
- 6,962. Cream separators. G. F. Strawson, 57 Holborn Viaduct, London.
- *6,966. Ships. A. W. and H. H. Theilsiefje, Ridgefield, Washington, U. S. A.
- *6,970. Pen extractors; erasers. F. H. Lamoreux, Smithshire, Ill., U. S. A.
- 7,005. Vehicle wheels. J. O. Comrie, 686 Garscube Road, Glasgow.
- 7,011. Pants. E. Hayes, and Walker, Cliffe & Hayes, 22 High street, Manchester.
- *7,046. Rubber covered chair hooks. J. E. Wallace, H. J. Humphreys and I. R. Landis, Los Angeles, Cal., U. S. A.
- 7,055. Sealing punctures in tires, etc. H. A. Wanklyn, 17 Manchester avenue, London.
- 7,062. Electrically propelled vehicles. D. Balachowsky and P. Caire, 64 Rue de la Chaussee d'Antin, Paris.
- *7,078. Veterinary syringes, etc. J. F. Kellogg, 118 N. First street, Guthrie, Okla., U. S. A.
- 7,121. Bats, etc. O. Mettam and A. E. Lewis, The Bridge, Taunton, Somerset.
- 7,179. Repairing tires. F. H. Hall, Gannaway Gate, Norton Lindsey, Warwickshire.
- 7,215. Capsuling bottles. M. Lumley, 1 America Square, Minorities, London.
- 7,230. Tire inflating valves. F. G. Tooth, The Lodge, Browsholme, Haslemere.
- 7,311. Automatic musical instruments. W. D. Wood, 50a Wigmore street, London.
- 7,314. Treating house refuse. G. Mayer-Dinkel, 9 Luisenring, Mannheim, Germany.
- 7,324. Balls. A. E. Prosser, 548 Holloway Road, London.
- 7,328. Dispensing liquids. C. E. Buxton and D. Greenwood, The Old Brewery, Cardiff.
- 7,379. Surgical trusses. G. A. Goddon, 18 Rylett Crescent, Shepherd's Bush, London.
- 7,394. Recovering nitrogen. H. L. A. M. Watrigant, 48 Facade de l'Esplanade, Lille, France.
- *7,396. Massage. E. J. McCarthy, 507 Fifth avenue, New York, U. S. A.
- 7,399. Air and like compressors. Harle et Cie, 26 Avenue de Suffren, Paris.
- 7,420. Side cars for motorcycles, etc. H. Holt, 68a Regent street, Leamington Spa.
- 7,426. Wheel tires. T. H. B. Gayner, 113 Neville street, Middle Park, South Melbourne, Australia.
- 7,438. Tread bands. W. Haseloff, Steinau, Germany.
- 7,439. Cleaning tubes, etc. A. Willis, 135 Brixton Hill, London.
- 7,443. Tread bands. L. Courouble, 40 Rue Faidherbe, Lille, France.

- 7,450. Tongue depressors. J. G. Macpherson, The Cottage Stornoway, Ross and Cromarty.
- 7,496. Tire inflating and like valves. G. R. Sanderson, 6 Fisher street, Workington, Cumberland.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 17, 1912.]

- 7,511. Electric couplings; insulation. J. Krannichfeldt, 1 Lochnerstrasse, Cologne, Germany.
- 7,541. Wheel tires. S. E. Caddy, Rook Hill House, Keynsham, near Bristol.
- 7,548. Tread bands, projections and surfaces. G. W. Beldam, Boston Lodge, Windmill Road, Ealing, London.
- 7,549. Tire attachments to rims. C. Morel, Domene, Isere, France.
- 7,569. Current detectors. W. Frisby, 111 Winnock Road, Colchester.
- 7,618. Cow milkers. H. Drouleage, 47 Vermont street, Ponsonby, Auckland, New Zealand.
- *7,660. Applying adhesive to sheets. A. Cohn and L. M. Kronheimer, New York, U. S. A.
- 7,667. Jackets and covers. H. Gundlach, 14 Moltkestrasse, Hagen, Westfalen, Germany.
- 7,679. Vehicle wheels. J. A. Ellis, Hatton, Warren Grange, Crowborough, Sussex.
- 7,687. Hats. E. Ashworth, Fernhill, Bury, Lancashire.
- 7,700. Wringing machines, etc. H. B. Miller, 31 Shaw street, and E. Bennett, 24 Percy street—both in Liverpool.
- 7,735. Filling compositions. R. J. Caldwell, Coventry House, Wilton avenue, Southampton, and Pneumatic, Ltd., 82 Victoria street, Westminster.
- *7,741. Air compressors. P. A. Newton, 6 Breams Bldgs., Chancery Lane, London. (Ingersoll Rand Co., 11 Broadway, New York, U. S. A.)
- 7,744. Spray producers. W. P. Harris, 179 Clarence Gate Gardens, Regent's Park, and H. S. Fox, 15 Wenlock Road, City Road—both in London.
- 7,809. Condensing; ejectors. D. B. Morison, Hartlepool Engine Works, Hartlepool.
- 7,828. Wheel tires. G. Desson, 4 Square Saint-Ferdinand, Paris.
- 7,856. A suction appliance for dental plates. W. H. Pope, 1 Rue du Cuvier, Poitiers, Vienne, France.
- 7,860. Surgical trusses. E. Dimant, Equitable Bldgs., Collins street, Melbourne, Australia.
- 7,904. Centrifugal separators. Markische Maschinenbau Anstalt Teutonia Ges, Frankfurt-on-Oder, Germany.
- *7,907. Vehicle wheels. A. H. Peloubet, Newark, N. J., U. S. A.
- 7,930. Wheel tires. F. Milan, Hydro Works, Lockwood Road, Lockwood, Huddersfield, and F. M. R. James, Thornton Road, Bradford—both in Yorkshire.
- 7,979. Horses' nosebags. J. W. Maxwell, 85 St. George's avenue, Tufnell Park, London.
- 7,992. Calendaring and like machines. G. Schnurmann, 27 Winkelsfelderstrasse, Dusseldorf, Germany.
- 8,026. Jackets and covers. R. D. Alder, 128 Branksome Road, Brixton Hill, and J. Gilles, 6 Margate Road, Brixton—both in London.
- 8,028. Jackets and covers. H. Penn, 9 Thomas street, Aston, Birmingham, and F. J. L. Widlake, 97 Abbey Road, St. John's Wood, London.
- 8,061. Surgical douches; injectors, etc. J. Haslam, 115 Ashton New Road, Beswick, Manchester.
- 8,095. India rubber machine. R. Bridge, Castleton Ironworks, Castleton, Lancashire.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JULY 24, 1912.]

- 8,174. Jackets and covers. T. Caldwell, Penn street, Bolton.
- 8,184. Bandages, etc. B. Kurowski, 52 Posnerstrasse, Posen, Germany.
- 8,230. Horse shoes. M. Banatowski, Vienna.
- 8,298. Moulding india rubber, etc. T. Gare, 250 Bristol Road, Edgbaston, Birmingham.
- 8,319. Boots, etc. G. Evans, 2 Walton street, Toronto, Canada.
- 8,402. Salvaging sunken vessels. V. E. Centonze, 64 Via Santa Brigida, Naples, Italy.
- 8,413. Tire attachments to rims. C. Ransom, 11 Gassiot Road, Tooting, London.
- 8,454. Tread bands. T. P. Buckton, North Lea, Lightcliffe, and W. Beattie, 17 Waverley Terrace, Hipperholme—both near Halifax, Yorkshire.
- 8,464. Balls. P. A. Martin, Granville street, and J. Stanley, 137 Ivor Road, Sparkhill—both in Birmingham.
- 8,465. Wearing apparel. D. H. Shapiro, 177 Mount Royal avenue, West Montreal, Canada.
- 8,468. Preserving wood. K. Koenman, 28 Rue Wazon, Liege, Belgium.
- 8,494. Beer engines. J. R. Phillips, 128 Ilderton Road, South Bermondsey, London.
- 8,513. Vaporizing apparatus. Kitson Empire Lighting Co., Wharf Road, and A. Noblett, 21 Priory Road—both in Stamford, Lincolnshire.
- 8,532. Lamplighters' torches, etc. H. Schwabacher, 6 Broad street, Place, London, E. C.
- 8,557. Balls. A. C. B. Bell, 17 Lansdowne Crescent, Edinburgh.
- 8,628. Cricket bats. J. Murrell, 129 Hobmoor Road, Small Heath, Birmingham.
- *8,653. Electric switches. F. W. Schmidt, 127 Edward street, Philadelphia, Pa., U. S. A.
- 8,682. Wheel tires. Dunlop Rubber Co. and J. V. Worthington, Manor Mills, Salford street, Aston, Birmingham.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL.]

- 8,723. Automatic musical instruments. M. M. Kastner and C. Katz, 34 Margaret street, Cavendish Square, London.
- 8,785. Boots. E. A. Lemoine, Le Coteau, Nord, France.
- 8,896. Wheel tires. Z. Olsson, 32 Great Peter street, Westminster.
- 8,983. Fastening wearing apparel. W. Corner, Grosvenor Factory, Blackfriars Road, Portsmouth.
- *8,987. Softening rubber. F. W. Howard, 509 W. 161st street, New York, U. S. A.
- 9,018. Lamp supports. E. von Schipp, Neustadt, Oberschlesien, Germany.
- 9,045. Rubber substitutes. A. Sauer, Zwingerberg, Hessen, and F. Gossel, Stockheim, Oberhessen, Germany.
- 9,081. Surgical trusses. J. and W. Almond, 103 Friar street, St. Helens, Lancashire.
- 9,190. Generating smoke for treating india rubber, etc. G. W. Sutton, Crofton Cottage, Stevenage, Hertfordshire.
- 9,197. Treating rubber. C. J. Beaver, "Rangemoor," Crescent Road, Hale, Cheshire, and E. A. Claremont, Throstle Nest House, Old Trafford, near Manchester.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

- 438,061 (September 28, 1911). E. von Vargyas. Rubber substitute.
- 438,125 (December 7). A. Dechamp. Bandages for ruptures with hollow rubber balls, molded together with metallic plates, and with multiple branches.
- 438,137 (December 11). L. Norzagaray and the Economic Rubber Washing Machine Co., Limited. Machine for treating rubber.
- 438,275 (December 26). L. Basso. Improvements in anti-skid automobile and other tires.
- 438,294 (December 27). Madame R. Basch. Elastic vehicle tire.
- 438,497 (December 29). J. Thomann. Pneumatic tire.
- 438,535 (December 30). M. Trebing. Protective device for pneumatic tires.
- 438,638 (January 3, 1912). J. Musso. Elastic wheel.
- 438,648 (January 4). Currin and the Captain Rim Co., Limited. Improvements in movable rims for pneumatic tires.
- 438,778 (January 8). G. Eichelbaum. Process for improving the quality of rubber.
- 438,780 (January 8). A. Seelig. Elastic tires sliding between inner and outer rims.
- 438,825 (January 9). E. Clark. Cover for pneumatic tire.
- 438,843 (January 10). J. Mayer. Improvements in rubber heels.
- 438,872 (January 8). A. Brottes. Protection for pneumatic tires.
- 438,917 (January 10). J. M. Champon. Protection for pneumatic tires.
- 438,921 (January 12). B. Polack Co. Wheel with metal spokes, sectional rims and pneumatic tires.
- 438,929 (January 12). E. B. Killen. Improvements in rubber tires and in their attachment to wheels.
- 439,053 (January 17). C. F. Adamson. Device for vulcanizing cemented portions of rubber tires and similar objects.
- 439,101 (January 18). A. Heinemann. Improvements in preparation of synthetic rubber.
- 439,127 (January 19). H. Agha. Covers of pneumatic tires.
- 439,297 (April 3, 1911). G. J. Krol. Pneumatic tire.
- 439,298 (April 3). M. Bouchet. Elastic pneumatic tire.
- 439,408 (April 5). French Western Congo Company. Process for extraction of Ceara rubber.
- 439,454 (April 8). Vulcana Company. Process of repairing pneumatic tires.
- 439,382 (January 25, 1912). Michelin & Co. Movable anti-skid devices for tires.
- 439,480 (January 29). E. G. Verdon. New anti-skid protective device for twin solid tires for use in heavy vehicles.

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

- 249,583 (January 17, 1911). Pneumatic tire covers. Deutsche Dunlop Gummi-Kompagnie, a. G. Hanau a. M.
- 249,947 (December 30, 1910). Process for making carbo-hydrates for transformation into rubber or similar substances. Dr. Karl Gottlob, Elberfeld.
- 249,802 (December 25, 1909). Improvement of properties of rubber substances obtained from solutions. Dr. Paul Alexander, Charlottenburg.
- 249,868 (October 24, 1911). Process for production of rubber or similar substances. F. E. Matthews and E. H. Strange, London.
- 249,923. Endless belting made from woven fabric impregnated with balata. John B. Hay and John Stewart, Youngstown, Ohio.
- 250,115. Roller with zig-zag longitudinal ribs for rubber washing machines. Crude Rubber Washing Company, Limited, and M. M. Dessau, London.
- 250,215 (May 3, 1910). Machine for extraction of rubber from the bark of rubber bearing plants. Leopold Valour, Marchienne-au-Pont, Belgium.
- 250,245 (August 2, 1910). Manufacture of objects in any desired length from powdered rubber waste. Thomas Gare, New Brighton, Cheshire, England.
- 250,279 (December 25, 1910). Process for vulcanizing portions of rubber objects. Continental Caoutchouc & Gutta Percha Company, Hanover.
- 250,281 (August 6, 1910). Process for imparting elastic properties to the product of the solution of albumen in formic acid.
- 250,335 (December 28, 1909). Production of a substance resembling rubber. Farbenfabriken vorm. Fried. Bayer & Co., Elberfeld.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

THE following is an official statement of the value of exports of manufactures of india-rubber and gutta-percha from the United States, for ten fiscal years, ending June 30:

Years.	Belting, packing and hose.	Boots and shoes.	All other rubber.	Total.
1911-12.....	\$2,315,424	\$1,502,890	\$7,349,115	\$11,167,229
1910-11.....	2,163,416	2,219,430	6,564,402	10,947,248
1909-10.....	1,960,825	1,984,739	5,115,331	9,060,895
1908-09.....	1,498,445	1,292,673	3,823,956	6,615,074
1907-08.....	1,347,775	1,614,290	3,743,040	6,705,105
1906-07.....	1,253,369	1,231,898	3,729,643	6,214,910
1905-06.....	1,221,159	1,505,082	2,966,144	5,692,385
1904-05.....	994,100	1,214,342	2,572,375	4,780,817
1903-04.....	879,476	1,086,364	2,469,750	4,435,590
1902-03.....	819,985	1,056,491	2,299,875	4,176,351

The above heading, "All Other Rubber," for the last two fiscal years includes the following details relating to Tires:

Years.	For Automobiles.	All Other.	Total.
1911-12.....	\$2,657,809	\$546,833	\$3,204,642
1910-11.....	2,085,107	592,470	2,677,577

Exports of rubber boots and shoes (in pairs) have been as follows, by fiscal years ending June 30:

Years.	Pairs.	Years.	Pairs.
1911-12.....	2,545,076	1906-07.....	2,310,420
1910-11.....	3,984,332	1905-06.....	2,693,670
1909-10.....	3,791,084	1906-05.....	2,390,539
1908-09.....	2,396,435	1903-04.....	2,310,808
1907-08.....	3,080,253	1902-03.....	2,307,401

Exports (in value) of reclaimed rubber and of waste rubber have been as follows:

Years.	Reclaimed.	Waste.
1911-12.....	\$875,501	\$780,188
1910-11.....	781,650	723,664
1909-10.....	535,795	578,944
1908-09.....	414,861	402,897
1907-08.....	418,738	449,727
1906-07.....	665,109	548,695
1905-06.....	511,843	339,507
1904-05.....	522,902	204,945

Imports into the United States of manufactures of india-rubber and gutta-percha, elasticon and similar substitutes:

Years.	India-rubber.	Gutta-percha.	Elasticon, etc.	Total.
1911-12.....	\$874,736	\$41,098	\$87,328	\$1,003,162
1910-11.....	875,125	61,283	.....	936,408
1909-10.....	1,154,347	80,567	.....	1,234,914
1908-09.....	1,391,770	71,819	.....	1,463,589
1907-08.....	1,956,590	93,545	.....	2,050,135
1906-07.....	2,262,783	191,064	.....	2,453,847
1905-06.....	1,992,413	208,172	.....	2,200,585
1904-05.....	1,389,064	117,735	.....	1,506,799
1903-04.....	821,562	335,480	.....	1,157,042
1902-03.....	665,972	225,198	.....	891,170

GREAT BRITAIN AND IRELAND.

OFFICIAL statement of exports of manufactures of india-rubber for the first six months of three years:

	1910.	1911.	1912.
Boots and shoes.....	£86,988	£69,376	£61,721
All others	897,199	961,804	891,954
Total value	£984,187	£1,031,180	£953,675
In U. S. money.....	\$4,789,546	\$5,018,237	\$4,641,059

Value of "Apparel" waterproofed by any process—first six months of the year: In 1910, £221,370; in 1911, £302,059, and in 1912, £368,624.

Exports of rubber footwear amounted to 83,106 dozen pairs in 1910; 66,521 dozen pairs in 1911, and 57,588 dozen pairs in 1912.

Review of the Crude Rubber Market.

THE prominent feature of the London market during August has been the maintenance of price during most of the time, above the 5 shilling mark, showing a gain of 2d. for the month which has elapsed since last report. The price of fine Pará on July 26 was 4s. 11¼d., and on August 26, at time of writing, 5s. 1¾d., a slight reaction being thus manifested upon the figure of 5s. 2d., which had been reached on August 21.

During the latter days of July, the continued operations of speculators and dealers kept the market fairly steady, at a slight falling off from the price of 4s. 11¼d., at which it stood on July 26. These conditions prevailed until August 8, when the price of 5s. was attained. During the next fortnight it ranged between 5s. and 5s. 1d., rising to 5s. 2d. on August 21, which level has since been practically maintained.

Taking the average price of each month this year, the result shown is: January, 4s. 6d.; February, 4s. 7d.; March, 4s. 10d.; April, 4s. 10¼d.; May, 4s. 7½d.; June, 4s. 9d.; July, 4s. 9½d. The overhead average for the year would thus be about 4s. 8½d., while the average for August alone was 5s. 0½d.; the high level of price now attained being thus illustrated. As shown in another column, Pará rubber stands about 3d. above price of standard plantation rubber; opinions differing as to the cause of this situation.

At the plantation rubber auctions held in London, July 30 and 31, 620 tons were offered, of which 400 tons were sold. Prices on the first day were 2d. to 3d. below the rates of a fortnight earlier. This fall in price stimulated demand, so that there was a recovery in values on the second day to the extent of fully 1d. Fine pale crepe was quoted at 4s. 10d.

The first August series of auctions on August 13 comprised 800 tons, of which 550 tons were sold at prices but slightly varying from those of the previous sale. Fine pale crepe brought 4s. 9¼d.

On August 27 commenced the second August series of London auctions; including 725 tons; of which 579 tons were sold at practically unchanged prices, fine pale crepe reaching 4s. 10d.

At the Antwerp sale of July 24 there was a very satisfactory demand, orders coming in from all quarters, and a good many wants being unfilled. Out of 250 tons Congo offered, 172 tons were sold at an average advance equaling 1¾d. per pound. There was strong competition for the plantation grades. Out of the 100 tons offered, 90 tons were sold at an advance which represented 2½d. per pound. The next sale was scheduled for August 21 and was expected to include 335 tons, of which 50 were good plantation grades.

Receipts of all classes of rubber at Antwerp were 2,475 tons for the seven months ending July, sales having been 2,715 tons; the figures for the corresponding period of 1911 having been 2,484 tons and 2,606 tons.

The Havre sale of July 25 did not result as favorably as had been hoped, the advance in Pará on the London market not being reflected in the action of buyers. Demand was good, but sellers were not disposed to meet the views of buyers. Under these circumstances only 25 tons were sold out of the 97 tons offered. The next sale was announced to take place on August 28, when 100 tons were to be offered, principally Congos.

On July 19 the sale at Amsterdam included only 22½ tons, as compared with the 47½ tons of June 21. The quantity scheduled for sale on August 18 was 37 tons, which was chiefly sold at good prices. At the Rotterdam sale of August 9 about 20 tons were offered and mostly sold.

Trading in New York followed the tendency of European advices, closing on the 28th quiet but steady.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago, August 27—the current date:

PARÁ.	Sept. 1, '11.	Aug. 1, '12.	Aug. 27, '12.
Islands, fine, new.....	108@109	107@108	112@113
Islands, fine, old.....	110@111	109@110	.....
Upriver, fine, new.....	117@118	117@118	122@123
Upriver, fine, old.....	119@120	122@123	124@125
Islands, coarse, new.....	62@ 63	*56@ 57	58@ 59
Islands, coarse, old.....	.....	.....	.....
Upriver, coarse, new.....	97@ 98	90@ 91	96@ 97
Upriver, coarse, old.....	98@ 99	.....	.....
Cametá.....	67@ 68	65@ 66	67@ 68
Caucho (Peruvian) ball.....	96@ 97	88@ 89	92@ 93
Caucho (Peruvian) sheet.....	.....	76@ 77	80@ 81

PLANTATION PARÁ.

Fine smoked sheet.....	138@139	120@121	121@122
Fine pale crepe.....	136@137	121@122	120@121
Fine sheets and biscuits.....	130@131	117@118	117@118

CENTRALS.

Esmeralda, sausage.....	86@ 87	83@ 84	85@ 86
Guayaquil, strip.....	.....	.....	.....
Nicaragua, scrap.....	84@ 85	81@ 82	84@ 85
Panama.....	.....	.....	.....
Mexican plantation, sheet.....	.....	.....	93@ 94
Mexican scrap.....	83@ 84	81@ 82	84@ 85
Mexican, slab.....	.....	.....	.....
Mangabeira, sheet.....	.....	.....	.....
Guayule.....	45@ 46	57@...	57@ 58
Balata, sheet.....	84@ 85	.....	88@ 89
Balata, block.....	63@ 64	.....	60@ 61

AFRICAN.

Lopori, ball, prime.....	110@112	108@109	none here
Lopori, strip, prime.....	none here	none here	none here
Aruwimi.....	102@104	103@104	104@105
Upper Congo, ball, red.....	110@112	105@106	107@108
Ikelemba.....	none here	none here	none here
Sierra Leone, 1st quality.....	92@ 93	95@ 96	100@101
Massai, red.....	93@ 94	98@ 99	102@103
Soudan, Niggers.....	none here	none here	none here
Cameroon, ball.....	70@ 71	none here	none here
Benguela.....	none here	none here	none here
Madagascar, pinky.....	83@ 84	none here	none here
Accra, flake.....	30@ 31	27@...	26@ 27

EAST INDIAN.

Assam.....	84@ 85	none here	none here
Pontianak.....	6½s@6¼	6@6½	6¼@6¾
Borneo.....	none here	none here	none here

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine.....	5\$000	Upriver, fine.....	—
Islands, coarse.....	2\$325	Upriver, coarse.....	—
		Exchange.....	16 2/32d.

Latest Manáos advices:

Upriver, fine.....	6\$450	Exchange.....	16 3/16d.
Upriver, coarse.....	4\$450		

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows:

"During August the demand for paper has continued fairly good from out-of-town banks, but at higher rates, 5¼@5½ per cent. for the best rubber names, and 5¾@6 per cent. for those not so well known. Our city banks have been mostly out of the market."

NEW YORK PRICES FOR JULY (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine.....	\$1.10@1.19	\$.99@1.17	\$2.16@2.40
Upriver, coarse.....	.85@ .91	.82@ .96	1.48@1.55
Islands, fine.....	1.00@1.08	.92@1.10	2.08@2.25
Cametá.....	.62@ .65	.70@ .75	1.10@1.23

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.					
	Fine and Medium.	Coarse.	Total. 1912.	Total. 1911.	Total. 1910.
Stocks, June 30..... tons	153	23 =	176	373	161
Arrivals, July	705	393 =	1,098	1,162	642
Aggregating	858	416 =	1,274	1,535	803
Deliveries, July	780	387 =	1,167	1,150	594
Stocks July 31.....	78	29 =	107	385	209

PARA.			ENGLAND.		
	1912.	1911.	1910.	1912.	1911.
Stocks, June 30..... tons	2,685	3,785	300	690	1,775
Arrivals, July	1,320	1,150	1,500	687	72
Aggregating	4,005	4,935	1,800	1,377	1,847
Deliveries, July.....	1,705	1,485	1,315	727	447
Stocks, July 31..	2,300	3,450	485	650	1,400

	1912.	1911.	1910.
World's visible supply, July 31..... tons	3,868	5,981	2,373
Para receipts, July 1 to July 31.....	1,320	1,150	1,500
Para receipts of caucho, same date.....	450	350	890
Afloat from Para to United States, July 31..	311	216	219
Afloat from Para to Europe, July 31.....	500	530	320

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

January 5, 1912	4/4½	May 3, 1912.....	4/7½
January 12	4/5½	May 10	4/7½
January 19	4/5½	May 17	4/7½
January 26	4/8	May 24	4/7½
February 2	4/7	May 31	4/7½
February 9	4/6½	June 7	4/8½
February 16	4/6¾	June 14	4/10
February 23	4/7½	June 21	4/9½
March 1	4/7½	June 28	4/7½
March 8	4/9	July 5	4/9
March 15	4/10½	July 12	4/10
March 22	5/1½	July 19	4/10
March 29	4/11½	July 26	4/11¾
April 5	4/11	August 2	4/11
April 12	4/11	August 9	5/0½
April 19	4/10¼	August 16	5/0½
April 25	4/9	August 23	5/2

Rubber Stock at Para.

Stock for January 31 showed an increase caused by heavier arrivals, while that of February 29 shows a slight decrease. The stock of March 31 displayed a further reduction, while that of April 30 was about the same as a month earlier. On May 31 the stock had again increased, but had receded by June 30; and had again fallen off on July 31.

February 28, 1911..... tons	3,787	November 30, 1911..... tons	3,050
March 31	4,214	December 31	2,675
April 30	5,104	January 31, 1912.....	3,370
May 31	5,350	February 29	3,240
June 30	4,545	March 31	2,730
July 31	3,884	April 30	2,770
August 31	3,450	May 31	2,995
September 30	3,102	June 30	2,685
October 31,	3,320	July 31	2,300

Amsterdam.

JOOSTEN & JANSSEN report [August 16]:

Today's offerings included about 20 tons *Hevea* and 17 tons *Ficus*, most of the important lots realizing on an average 3 per cent. above foreign parity. The bulk of the quantity offered was sold. Prices of *Hevea* and *Ficus* averaged 5 per cent. below those of *Castilloa*.

Rotterdam.

HAVELAAR & DE VRIES report [August 16]:

The offerings in sale of 9th inst. included about 12 tons Congo, 7 tons *Hevea* and 1½ tons *Ficus*, nearly all sold with good competition. Congos and *Castilloas* reached 1d. above valuations, while *Heveas* and *Ficus* went at 2d. to 1d. below valuations. On 28th August there will be a sale of about 1½ tons gutta-percha, "Tijpetia" brand.

African Rubbers.

NEW YORK STOCKS (IN TONS).

July 1, 1911.....	90	February 1, 1912.....	150
August 1	90	March 1	90
September 1	112	April 1	80
October 1	67	May 1	62
November 1	45	June 1	94
December 1	60	July 1	62
January 1, 1912.....	58	August 1	85

British Crude Rubber Statistics

OFFICIAL STATEMENT—JANUARY 1 TO JUNE 30.

	WEIGHTS.		
	1910.	1911.	1912.
Imports	56,279,888	52,346,896	57,608,096
Exports	29,237,152	29,984,416	41,535,760
Net imports	27,042,736	22,362,480	16,072,336

	VALUES.		
	1910.	1911.	1912.
Imports	£16,280,980	£10,415,368	£10,388,167
Exports	8,448,898	6,731,945	8,357,766
Net imports	£7,832,082	£3,683,423	£2,030,401

GUTTA PERCHA IMPORTS.

	WEIGHTS.		
	1910.	1911.	1912.
Imports..... pounds	4,330,032	3,394,496	2,839,536
Exports	245,504	621,264	349,104
Net imports	4,094,528	2,773,232	2,490,432

	VALUES.		
	1910.	1911.	1912.
Imports	£438,740	£389,220	£270,867
Exports	28,795	80,634	49,158
Net imports	£409,945	£308,586	£221,709

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

AUGUST 1.—By the steamer *Gregory* from Manáos:

	Fine.	Medium.	Coarse.	Caucho.	TOTAL.
Arnold & Zeiss.....	40,000	15,700	27,700	200=	83,600
L. & A. Astlett.....	.....	.....	.....	17,200=	17,200
W. R. Grace & Co.....	.....	.....	.....	7,100=	7,100
Robinson & Co.....	3,400	3,300	.....	.....	6,700
New York Commercial Co.....	.....	5,000	.....	.....	5,000
Total	43,400	24,000	27,700	24,500=	119,600

AUGUST 1.—By the steamer *Purus* from Pará:

New York Commercial Co.....	42,900	7,800	6,000	25,200=	81,900
Meyer & Brown.....	63,200	.....	1,200	.....	64,400
Robinson & Co.....	3,900	.....	15,800	.....	19,700
Arnold & Zeiss.....	3,000	.....	4,900	.....	7,900
General Rubber Co.....	.....	.....	4,600	.....	4,600
Total	113,000	7,800	32,500	25,200=	178,500

AUGUST 5.—By the steamer *Stephan* from Manáos and Pará:

General Rubber Co.....	168,300	31,300	10,200	.....	209,800
Arnold & Zeiss.....	28,500	5,000	67,300	59,400=	160,200
Meyer & Brown.....	75,700	1,100	.....	24,600=	101,400
New York Commercial Co.....	5,700	1,800	26,400	42,600=	76,500
Henderson & Korn.....	5,700	300	21,100	.....	27,100
De Lagotellerie & Co.....	11,500	1,000	11,900	.....	24,400
Robinson & Co.....	8,900	3,100	9,200	.....	21,200
Hagemeyer & Brunn.....	8,600	300	5,900	.....	14,800
Total	312,900	43,900	152,000	126,600=	635,400

AUGUST 19.—By the steamer *Dominic* from Manáos and Pará:

Arnold & Zeiss.....	254,300	44,900	148,200	52,600=	500,000
New York Commercial Co.....	200,900	43,700	61,400	19,900=	325,900
Meyer & Brown.....	45,600	13,800	22,000	51,200=	132,600
Henderson & Korn.....	29,300	8,300	6,100	6,500=	50,200
De Lagotellerie & Co.....	21,400	1,500	11,900	.....	34,800
General Rubber Co.....	10,700	.....	15,900	.....	26,600
Hagemeyer & Brunn.....	600	.....	2,000	.....	2,600
Total	562,800	112,200	267,500	131,200=	1,072,700

AUGUST 24.—By the steamer *Clement* from Manáos and Pará:

Arnold & Zeiss.....	195,000	16,800	135,600	33,600=	381,000
Henderson & Korn.....	45,100	6,000	186,300	600=	238,000
New York Commercial Co.....	86,300	12,500	25,200	51,400=	175,400
De Lagotellerie & Co.....	35,700	5,700	27,000	600=	69,000
General Rubber Co.....	.....	.....	32,400	.....	32,400
Robinson & Co.....	8,200	700	19,800	.....	28,700
Meyer & Brown.....	6,100	400	.....	.....	6,500
G. Amsinck & Co.....	2,500	.....	600	.....	3,100
Total	378,900	42,100	426,900	86,200=	934,100

PARA RUBBER VIA EUROPE.

	Pounds.
JULY 25.—By the <i>Maracas</i> =Bolívar:	
Ed. Maurer (Fine).....	8,000
Ed. Maurer (Coarse).....	8,000
	16,000
JULY 29.—By the <i>Caronia</i> =Liverpool:	
Robinson & Co. (Fine).....	10,000
New York Commercial Co. (Fine).....	22,500
	32,500
JULY 30.—By the <i>Allianca</i> =Mollendo:	
F. Rosenstern & Co. (Fine)....	3,000
W. R. Grace & Co. (Caucho)...	2,500
	5,500
AUGUST 1.—By the <i>President Grant</i> =Hamburg:	
Ed. Maurer (Fine).....	10,000
New York Commercial Co. (Fine).....	6,000
	16,000
AUGUST 3.—By the <i>Lusitania</i> =Liverpool:	
New York Commercial Co. (Fine).....	45,000
AUGUST 7.—By the <i>Grenada</i> =Bolívar:	
Ed. Maurer (Fine).....	50,000
Ed. Maurer (Coarse).....	15,000
Yglesias, Lobo & Co. (Fine)....	4,500
Yglesias, Lobo & Co. (Coarse)...	2,000
American Trading Co. (Fine)....	1,500
	73,000
AUGUST 7.—By the <i>Saramaca</i> =Bolívar:	
General Export Comm. Co. (Fine).....	30,000
General Exp. Comm. Co. (Coarse).....	10,000
	40,000
AUGUST 10.—By the <i>Celtic</i> =Liverpool:	
Robinson & Co. (Fine).....	5,000
AUGUST 12.—By the <i>Campania</i> =Liverpool:	
Raw Products Co. (Caucho).....	13,500
AUGUST 14.—By the <i>Cincinnati</i> =Hamburg:	
Meyer & Brown (Fine).....	11,500
Ed. Maurer (Fine).....	5,500
	17,000
AUGUST 16.—By the <i>Mauretania</i> =Liverpool:	
Arnold & Zeiss (Caucho).....	45,000
AUGUST 21.—By the <i>Caronia</i> =Liverpool:	
Arnold & Zeiss (Fine).....	17,000
AUGUST 21.—By the <i>President Lincoln</i> =Hamburg:	
Ed. Maurer (Fine).....	8,000
New York Commercial Co. (Fine).....	2,500
	10,500
AUGUST 24.—By the <i>Baltic</i> =Liverpool:	
Arnold & Zeiss (Caucho).....	22,500

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

	Pounds.
JULY 24.—By the <i>Joachim</i> =Colon:	
G. Amsinck & Co.....	9,000
Pablo Calvet & Co.....	1,500
Roldau & Van Sickle.....	1,000
J. J. Julia & Co.....	1,000
Suzarte & Whitney.....	1,000
I. Brandon & Bros.....	1,000
Wessels, Kulenkampff & Co....	1,000
	15,500
JULY 26.—By the <i>Camaguey</i> =Tampico:	
Ed. Maurer.....	*245,000
New York Commercial Co.....	*140,000
Arnold & Zeiss.....	*45,000
H. Marquardt & Co.....	*30,000
For Europe.....	*65,000
	*525,000
JULY 27.—By the <i>Esperanza</i> =Mexico:	
Harburger & Stack.....	4,000
E. Steiger & Co.....	3,500
G. Amsinck & Co.....	1,500
Mecke & Co.....	1,000
New York Commercial Co.....	1,000
For Europe.....	7,000
	18,000
JULY 27.—By the <i>El Siglo</i> =Galveston:	
Continental-Mexican Rubber Co. *\$6,000	
Charles T. Wilson.....	*9,000
	*65,000
JULY 27.—By the <i>Tennyson</i> =Bolívar:	
A. Hirsch & Co.....	56,000
J. H. Rossbach & Bros.....	9,000
	65,000
JULY 29.—By the <i>Allianca</i> =Colon:	
G. Amsinck & Co.....	3,500
J. Sambrada & Co.....	1,000
Pablo Calvet & Co.....	1,000
Dumarest Bros. & Co.....	1,000
	6,500
JULY 30.—By the <i>El Mundo</i> =Galveston:	
Continental-Mexican Rubber Co. *100,000	
	*100,000
JULY 30.—By the <i>Altai</i> =Colombia:	
A. Held.....	2,000
Maitland, Coppell & Co.....	1,500
R. del Castillo & Co.....	1,500
Caballero & Blanco.....	1,000
I. Brandon & Bros.....	1,000
	7,000
JULY 30.—By the <i>Comus</i> =New Orleans:	
Manhattan Rubber Mfg. Co....	3,500

Eggers & Heinlein.....	2,500
Robinson & Co.....	1,500
Unknown.....	2,500
	10,000
JULY 31.—By the <i>Prinz Eitel Friedrich</i> =Colon:	
A. M. Capen & Son.....	4,500
J. Sambrada & Co.....	3,500
Andean Trading Co.....	3,500
United Fruit Co.....	1,500
Gillespie Bros. & Co.....	1,500
In transit.....	3,000
	17,500
AUGUST 3.—By the <i>Morro Castle</i> =Frontera:	
Harburger & Stack.....	6,000
G. Amsinck & Co.....	3,500
New York Commercial Co.....	3,500
Meyer & Brown.....	2,500
E. Steiger & Co.....	2,000
W. Hawes & Co.....	1,000
Hermann Kluge.....	1,000
	19,500
AUGUST 5.—By the <i>Vasari</i> =Bolívar:	
A. Hirsch & Co.....	27,000
New York Commercial Co.....	4,500
J. H. Rossbach & Bros.....	2,500
	34,000
AUGUST 5.—By the <i>Guantanamo</i> =Tampico:	
Ed. Maurer.....	*150,000
New York Commercial Co.....	*80,000
Arnold & Zeiss.....	*35,000
I. W. Wilson & Co.....	*10,000
For Europe.....	*20,000
	*295,000
AUGUST 5.—By the <i>Cedric</i> =Liverpool:	
A. Hirsch & Co.....	15,000
AUGUST 7.—By the <i>Rochambeau</i> =Havre:	
In Transit.....	35,000
AUGUST 7.—By the <i>El Dia</i> =Galveston:	
Continental-Mexican Rubber Co. *100,000	
Chas. T. Wilson.....	*20,000
	*120,000
AUGUST 7.—By the <i>Antilles</i> =New Orleans:	
Manhattan Rubber Mfg. Co....	13,500
Unknown.....	4,000
	17,500
AUGUST 7.—By the <i>Colon</i> =Colon:	
G. Amsinck & Co.....	24,000
Piza, Nephews & Co.....	5,000
A. Rosenthal & Sons.....	4,000
I. Brandon & Bros.....	3,500
Dumarest Bros. & Co.....	3,500
Mecke & Co.....	2,500
Kunhardt & Co.....	1,500
Caballero & Blanco.....	1,500
J. Sambrada & Co.....	1,500
Lanman & Kemp.....	1,500
Pablo Calvet & Co.....	1,500
H. Fellman & Co.....	1,000
	51,000
AUGUST 12.—By the <i>Seguranca</i> =Mexico:	
Harburger & Stack.....	6,500
New York Commercial Co.....	4,500
Meyer & Brown.....	2,500
American Trading Co.....	3,000
Kunhardt & Co.....	1,500
H. Marquardt & Co.....	1,000
For London.....	4,500
	23,500
AUGUST 12.—By the <i>Scottish Prince</i> =Bolívar:	
A. Hirsch & Co.....	18,000
AUGUST 13.—By the <i>Matanzas</i> =Tampico:	
Ed. Maurer.....	*95,000
Arnold & Zeiss.....	*35,000
Continental-Mexican Rubber Co. *35,000	
For Europe.....	*55,000
	220,000
AUGUST 15.—By the <i>Oruba</i> =Colon:	
I. Brandon & Bros.....	17,000
G. Amsinck & Co.....	10,000
H. Fellman & Co.....	3,000
A. M. Canen's Sons.....	2,500
DeLima, Cortisoz & Co.....	2,000
Roldau & Van Sickle.....	1,500
Gillespie Bros. & Co.....	1,000
	37,000
AUGUST 16.—By the <i>Texan</i> =Mexico:	
Charles T. Wilson.....	*35,000
AUGUST 16.—By the <i>Panama</i> =Colon:	
G. Amsinck & Co.....	12,000
H. Fellman & Co.....	5,000
J. Sambrada & Co.....	4,000
W. Loiza & Co.....	2,000
	23,000
AUGUST 19.—By the <i>Antilles</i> =Tampico:	
Ed. Maurer.....	*100,000
New York Commercial Co.....	*70,000
For Europe.....	*15,000
	185,000
AUGUST 20.—By the <i>Prinz Joachim</i> =Colon:	
G. Amsinck & Co.....	12,500
I. Brandon & Bros.....	9,500
Andean Trading Co.....	3,500
New York Commercial Co.....	2,500
Gravenhorst & Co.....	2,000
Suzarte & Whitney.....	1,000
	31,000
AUGUST 20.—By the <i>El Dorado</i> =Galveston:	
Continental-Mexican Rubber Co. *35,000	
Chas. T. Wilson.....	*5,000
	*40,000

AUGUST 22.—By the <i>Allianca</i> =Colon:	
G. Amsinck & Co.....	5,000
Charles E. Griffin.....	3,500
Gillespie Bros. & Co.....	1,500
Mecke & Co.....	1,500
Pablo Calvet & Co.....	1,000
Wessels, Kulenkampff & Co....	1,000
Maldonado & Co.....	1,000
	14,500
AUGUST 23.—By the <i>Monterey</i> =Frontera:	
H. Marquardt & Co.....	5,500
Herman Kluge.....	2,500
E. Steiger & Co.....	2,500
Harburger & Stack.....	1,500
Graham, Hinkley & Co.....	1,500
American Trading Co.....	1,500
Geo. A. Alden & Co.....	1,000
Meyer & Brown.....	1,000
For London.....	5,500
	22,500

AFRICAN.

	Pounds.
JULY 25.—By the <i>Hamburg</i> =Hamburg:	
Meyer & Brown.....	18,000
George A. Alden & Co.....	7,000
General Rubber Co.....	6,000
Rubber Trading Co.....	4,500
Muller Schall & Co.....	4,000
Ed. Maurer.....	4,500
	44,000
JULY 29.—By the <i>Philadelphia</i> =London:	
George A. Alden & Co.....	27,000
Charles T. Wilson.....	7,000
Rubber Trading Co.....	7,000
Robert Badenhop.....	4,500
Muller Schall & Co.....	2,500
	48,000
JULY 29.—By the <i>Caronia</i> =Liverpool:	
George A. Alden & Co.....	11,500
Ed. Maurer.....	11,000
Robert Badenhop.....	4,500
	27,000
JULY 31.—By the <i>Vaderland</i> =Antwerp:	
Meyer & Brown.....	7,000
Henderson & Korn.....	3,500
	10,500
AUGUST 1.—By the <i>President Grant</i> =Hamburg:	
Ed. Maurer.....	15,000
Rubber Trading Co.....	7,000
	22,000
AUGUST 3.—By the <i>Lusitania</i> =Liverpool:	
Arnold & Zeiss.....	9,000
George A. Alden & Co.....	9,000
Raw Products Co.....	2,000
	20,000
AUGUST 5.—By the <i>Cedric</i> =Liverpool:	
Meyer & Brown.....	29,000
Ed. Maurer.....	15,000
J. T. Johnstone.....	11,000
	55,000
AUGUST 6.—By the <i>Lapland</i> =Antwerp:	
Wallace L. Gough Co.....	11,000
Arnold & Zeiss.....	7,000
Meyer & Brown.....	5,500
	23,500
AUGUST 6.—By the <i>St. Louis</i> =London:	
Ed. Maurer.....	45,000
Meyer & Brown.....	40,000
	85,000
AUGUST 7.—By the <i>Rochambeau</i> =Havre:	
George A. Alden & Co.....	15,000
AUGUST 7.—By the <i>Amerika</i> =Hamburg:	
Meyer & Brown.....	100,000
Ed. Maurer.....	60,000
Arnold & Zeiss.....	35,000
Wallace L. Gough Co.....	13,500
Rubber Trading Co.....	7,000
J. T. Johnstone.....	5,000
	220,500
AUGUST 8.—By the <i>Oceanic</i> =London:	
Robert Badenhop.....	7,000
Charles T. Wilson.....	7,000
	14,000
AUGUST 10.—By the <i>Celtic</i> =Liverpool:	
General Rubber Co.....	17,000
Henderson & Korn.....	9,000
Arnold & Zeiss.....	7,000
J. T. Johnstone.....	2,000
	35,000
AUGUST 12.—By the <i>Pennsylvania</i> =Hamburg:	
Meyer & Brown.....	20,000
Robert Badenhop.....	18,000
Henderson & Korn.....	11,500
General Rubber Co.....	13,500
Ed. Maurer.....	5,500
	68,500
AUGUST 12.—By the <i>New York</i> =London:	
George A. Alden & Co.....	67,000
Meyer & Brown.....	15,000
Robert Badenhop.....	11,500
	93,500
AUGUST 14.—By the <i>Cincinnati</i> =Hamburg:	
Ed. Maurer.....	22,500
Meyer & Brown.....	17,000
George A. Alden & Co.....	13,500
Rubber Trading Co.....	4,500
	57,500
*AUGUST 14.—By the <i>Finland</i> =Antwerp:	
George A. Alden & Co.....	85,000
Meyer & Brown.....	22,500
Arnold & Zeiss.....	25,000
	132,500

August 16.—By the <i>Adriatic</i> =Liverpool:		
General Rubber Co.	18,500	
Wallace L. Gough Co.	9,000	27,500
August 19.—By the <i>Indiana</i> =Lisbon:		
General Rubber Co.	50,000	
Ed. Maurer	30,000	80,000
August 20.—By the <i>Zeeland</i> =Antwerp:		
Arnold & Zeiss	8,000	
Henderson & Korn	7,000	
Wallace L. Gough Co.	8,000	23,000
August 21.—By the <i>Caronia</i> =Liverpool:		
Arnold & Zeiss	10,000	
J. T. Johnstone	7,500	17,500
August 21.—By the <i>President Lincoln</i> =Hamburg:		
Ed. Maurer	13,500	
Wallace L. Gough Co.	13,500	
Meyer & Brown	10,000	
Henderson & Korn	5,000	
George A. Alden & Co.	5,000	
Rubber Trading Co.	5,000	
Robert Badenhop	4,000	
General Rubber Co.	4,500	60,500

EAST INDIAN.

[*Denotes plantation rubber.]

JULY 24.—By the <i>Olympic</i> =London:		
Arnold & Zeiss	*45,000	
New York Commercial Co.	*25,000	
J. T. Johnstone	*15,000	
Charles T. Wilson	*11,500	
Meyer & Brown	*15,000	
Ed. Maurer	*10,000	
In Transit	*15,500	*137,000
JULY 29.—By the <i>Philadelphia</i> =London:		
Arnold & Zeiss	*34,000	
New York Commercial Co.	*33,500	
Ed. Maurer	*22,500	
W. H. Stiles & Co.	*11,000	*101,000
JULY 29.—By the <i>Caronia</i> =Liverpool:		
Robinson & Co.	*9,000	
Raw Products Co.	*5,000	
Robinson & Co.	*27,000	*41,000
JULY 30.—By the <i>Vaderland</i> =Antwerp:		
Robert Badenhop	*11,000	
Meyer & Brown	*6,000	*17,000
JULY 30.—By the <i>Schuykill</i> =Singapore:		
General Rubber Co.	*45,000	
Ed. Maurer	*20,000	
Wallace L. Gough Co.	*15,000	
New York Commercial Co.	*11,000	
L. Littlejohn & Co.	*15,000	
Ed. Maurer	65,000	
L. Littlejohn & Co.	11,000	182,000
August 1.—By the <i>Majestic</i> =London:		
New York Commercial Co.	*65,000	
Arnold & Zeiss	*9,000	
Charles T. Wilson	*9,000	
Robert Badenhop	*7,000	*90,000
August 3.—By the <i>Lusitania</i> =Liverpool:		
Robinson & Co.	*11,000	
Raw Products Co.	*5,500	*16,500
August 6.—By the <i>Lapland</i> =Antwerp:		
Meyer & Brown	*90,000	
Wallace L. Gough Co.	*3,500	*93,500
August 6.—By the <i>St. Louis</i> =London:		
Ed. Maurer	*22,500	
New York Commercial Co.	*22,500	
Arnold & Zeiss	*15,000	
Robinson & Co.	*11,500	
W. H. Stiles & Co.	*45,000	*116,500
August 7.—By the <i>Minneapolis</i> =London:		
Robinson & Co.	*11,500	
Raw Products Co.	*11,000	
Robinson & Co.	*22,500	*45,000

August 8.—By the <i>Oceanic</i> =London:		
New York Commercial Co.	*40,000	
Meyer & Brown	*23,000	
J. T. Johnstone	*22,000	
Ed. Maurer	*25,000	
Robert Badenhop	*10,000	
Charles T. Wilson	*7,000	
Henderson & Korn	*2,500	
Arnold & Zeiss	*11,500	
General Rubber Co.	35,000	
In Transit	*35,000	231,000
August 9.—By the <i>Rotterdam</i> =Rotterdam:		
Ed. Maurer	*13,500	
Raw Products Co.	*7,000	*20,500
August 10.—By the <i>Kasama</i> =Colombo:		
Meyer & Brown	*45,000	
New York Commercial Co.	*8,000	*53,000
August 12.—By the <i>New York</i> =London:		
New York Commercial Co.	*30,000	
J. T. Johnstone	*13,500	
Ed. Maurer	*13,500	
Meyer & Brown	*11,500	
W. H. Stiles & Co.	*13,500	
Robert Badenhop	*9,000	
George A. Alden & Co.	30,000	
In Transit	*35,000	156,000
August 12.—By the <i>Lothian</i> =Singapore:		
Wallace L. Gough Co.	*19,000	
Ed. Maurer	*13,500	
L. Littlejohn & Co.	*11,500	
New York Commercial Co.	*3,500	*47,500
August 14.—By the <i>Cincinnati</i> =Hamburg:		
Rubber Trading Co.	*15,000	
August 14.—By the <i>Finland</i> =Antwerp:		
Meyer & Brown	*22,500	
Arnold & Zeiss	*11,500	*34,000
August 15.—By the <i>Olympic</i> =London:		
New York Commercial Co.	*50,000	
Robinson & Co.	*25,000	
Ed. Maurer	*15,000	
W. H. Stiles & Co.	*9,000	
Charles T. Wilson	*5,000	
Arnold & Zeiss	*15,000	
In Transit	*90,000	*209,000
August 17.—By the <i>Walton Hall</i> =Singapore:		
Ed. Maurer	*54,000	
Wallace L. Gough Co.	*25,000	
L. Littlejohn & Co.	*11,500	
Otto Isenstein & Co.	30,000	
Arnold & Zeiss	22,500	
Haebler & Co.	16,000	
J. Warren Bird	15,000	
Manhattan Rubber Mfg. Co.	7,000	181,000
August 19.—By the <i>St. Paul</i> =London:		
New York Commercial Co.	*40,000	
Arnold & Zeiss	*35,000	
Ed. Maurer	*30,000	
W. H. Stiles & Co.	*15,000	
Meyer & Brown	*11,000	*131,000
August 20.—By the <i>Egremont</i> =Singapore:		
Ed. Maurer	*35,000	
L. Littlejohn & Co.	*10,000	
Ed. Maurer	30,000	75,000
August 20.—By the <i>Zeeland</i> =Antwerp:		
Meyer & Brown	*15,000	
August 22.—By the <i>Majestic</i> =London:		
Arnold & Zeiss	*35,000	
New York Commercial Co.	*30,000	
Robinson & Co.	*7,000	
Ed. Maurer & Co.	*5,500	
Robert Badenhop	*5,500	
Raw Products Co.	*3,500	
Arnold & Zeiss	22,500	
In Transit	*22,500	131,500

GUTTA-JELUTONG.

POUNDS.

JULY 29. By the <i>Schuykill</i> =Singapore:		
L. Littlejohn & Co.	425,000	
Haebler & Co.	295,000	
Wallace L. Gough Co.	280,000	
George A. Alden & Co.	100,000	1,100,000

August 17.—By the <i>Walton Hall</i> =Singapore:		
L. Littlejohn & Co.	250,000	
Wallace L. Gough Co.	55,000	
Haebler & Co.	50,000	355,000
August 20. By the <i>Egremont</i> =Singapore:		
Haebler & Co.	285,000	
L. Littlejohn & Co.	315,000	
Wallace L. Gough Co.	155,000	
George A. Alden & Co.	40,000	
W. R. Russell & Co.	100,000	895,000

GUTTA-PERCHA.

POUNDS.

August 12.—By the <i>Lothian</i> =Singapore:		
Ed. Maurer	40,000	
August 17.—By the <i>Walton Hall</i> =Singapore:		
Wallace L. Gough Co.	34,000	
Haebler & Co.	3,500	37,500
August 20.—By the <i>Egremont</i> =Singapore:		
Wallace L. Gough Co.	30,000	
August 21.—By the <i>President Lincoln</i> =Hamburg:		
Robert Soltau & Co.	8,500	
JULY 31.—By the <i>Tagus</i> =Colon:		
G. Amsinck & Co.	5,500	
August 7.—By the <i>Saramaca</i> =Demerara:		
Ed. Maurer	5,500	
Middleton Co.	3,500	
George A. Alden & Co.	2,500	11,500
August 10.—By the <i>Advance</i> =Colon:		
H. Marquardt & Co.	5,000	
M. A. DeLeon Co.	4,000	9,000
August 20.—By the <i>Coopename</i> =Demerara:		
G. Amsinck & Co.	11,000	
Ed. Maurer	7,000	
Middleton & Co.	5,500	
George A. Alden & Co.	2,500	26,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—JULY, 1912.

Imports:	Pounds.	Value.
India-rubber	6,316,847	\$5,272,552
Balata	9,541	7,708
Guayule	726,855	270,232
Gutta-percha	10,257	8,173
Gutta-jelutong (Pontianak)	764,235	33,494
Total	7,827,735	\$5,592,159
Exports:		
India-rubber	61,096	\$49,724
Balata	2,176	1,688
Guayule	150,103	19,492
Gutta-percha	150,103	19,492
Gutta-jelutong (Pontianak)	3,344,585	\$176,285
Rubber scrap, imported	344,267	47,269
Rubber scrap, exported		

BOSTON ARRIVALS.

POUNDS.

JULY 12.—By the <i>Cymric</i> =Liverpool:		
George A. Alden & Co. (Gutta Percha)	2,100	
JULY 22.—By the <i>Schuykill</i> =Singapore:		
State Rubber Co. (East Indian)	47,000	
JULY 22.—By the <i>Schuykill</i> =Singapore:		
State Rubber Co. (Jelutong)	175,000	
JULY 22.—By the <i>Schuykill</i> =Singapore:		
George A. Alden & Co. (Jelutong)	157,000	
JULY 22.—By the <i>Schuykill</i> =Singapore:		
L. Littlejohn & Co. (Jelutong)	1,380,000	

EXPORTS OF INDIA-RUBBER FROM PARA FOR JULY, 1912 (IN KILOGRAMS).

EXPORTERS.	NEW YORK.				EUROPE.				TOTAL.	
	Fine.	Medium.	Coarse.	Cauch.	Fine.	Medium.	Coarse.	Cauch.	TOTAL.	TOTAL.
Zarges, Berringer & Co.	71,403	24,985	143,149	57,147	296,684	95,245	21,585	52,219	261,126	557,810
Ad. H. Alden, Ltd.	54,512	10,776	31,623	34,720	131,631	58,575	3,475	31,680	93,730	225,361
General Rubber Co. of Brazil	21,739	1,378	33,524	12,320	68,961	40,443	2,007	1,807	99,983	168,944
Suarez Hermanos & Co., Ltd.						45,503	470	4,223	24,380	74,576
R. O. Ahlers & Co.	27,372	7,400	31,082	19,349	85,203	19,260		6,404	31,890	117,093
De Lagotellerie & Co.	17,850	2,380	20,790		41,020	14,620			14,620	55,640
Pires, Teixeira & Co.	4,080	170	2,970		7,220	3,400			3,570	10,790
Syndicate J. Marques	140,320	14,880	5,100		160,300	120,000	14,880	5,100	139,980	300,280
J. Marques	2,720	170	10,560		13,450	2,890	170	2,970	6,030	19,480
Sundry exporters	4,121		3,300	560	7,981	170		330	1,620	9,601
Iacoatiara, direct						5,160	450	3,270	8,880	8,880
	344,117	62,139	282,098	124,096	812,450	405,266	43,207	108,003	736,005	1,548,455
Manãos, direct	234,663	55,248	42,010	24,669	356,590	171,066	15,089	74,052	469,219	825,809
Iquitos, direct	231			11,828	12,059	12,954	432	3,051	107,295	119,354
Total, July, 1912	579,011	117,387	324,108	160,593	1,181,099	589,286	58,728	185,106	479,399	2,493,618



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Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are practically unchanged.

September 1.

Old rubber boots and shoes—domestic.....	9½@ 9¼
Old rubber boots and shoes—foreign.....	9½@ 9¼
Pneumatic bicycle tires.....	4½@ 4¾
Automobile tires.....	9½@ 9¼
Solid rubber wagon and carriage tires.....	9¼@ 9½
White trimmed rubber	11 @11½
Heavy black rubber.....	4¾@ 5
Air brake hose.....	5½@ 5¾
Garden hose.....	1½@ 1¾
Fire and large hose.....	2 @ 2½
Matting	5½@ ¾

Antwerp

RUBBER STATISTICS FOR JULY.

DETAILS.	1912.	1911.	1910.	1909.	1908.
Stocks, June 30..Kilos	343,191	773,977	460,517	476,420	684,866
Arrivals in July—					
Congo sorts	296,528	198,520	144,697	461,506	172,828
Other sorts	21,662	21,790	42,685	56,358	48,816
Plantation sorts	57,403	42,741	65,517	12,056	5,558
Aggregating	718,786	1,037,028	710,416	1,006,340	912,068
Sales in July.....	284,475	571,294	190,451	481,828	216,517
Stocks, July 31.....	434,311	465,734	519,965	524,512	695,551
Arrivals since Jan. 1—					
Congo sorts	1,713,944	1,841,113	1,800,323	2,177,715	2,430,364
Other sorts	90,828	268,743	210,207	610,922	333,921
Plantation sorts	670,039	374,217	324,577	144,787	68,742
Aggregating	2,474,811	2,484,073	2,335,107	2,933,424	2,833,027
Sales since Jan. 1.....	2,715,038	2,606,551	2,356,652	3,004,647	3,144,370

RUBBER ARRIVALS FROM THE CONGO.

JULY 23.—By the steamer *Bruxellesville*:

Bunge & Co.....	(Société Générale Africaine) Kilos	112,000
do	(Chemins de fer Grands Lacs)	8,000
do	(Alberta)	2,800
Société Coloniale Anversoise.....	(Cie. du Kasai)	63,800
do	(Comminiére)	15,600
L. & W. Van de Velde.....	(Comfina)	14,500
do	(Velde)	6,000
Charles Dethier.....	(American Congo Co.)	6,700
Congo Trading Co.....		8,600
Société Générale de Commerce.....	(Almaienne)	1,200
Cassart & Henrion.....		700
		239,900

AUGUST 13.—By the steamer *Elizabethville*:

Bunge & Co.....	(Société Générale Africaine) Kilos	120,000
do	(Chemins de fer Grande Lacs)	32,000
do	(Alberta)	2,400
do	(Belgika)	430
do	(Comptoir Commercial Congolais)	30,000
do		1,750
Société Coloniale Anversoise.....	(Haut Congo)	3,600
do	(Société Française du Haut Congo)	5,400
L. & W. Van de Velde.....	(Cie. du Kasai)	60,500
do	(Comfina)	6,000
do	(Velde)	4,000
Charles Dethier.....	(American Congo Co.)	5,500
do	(Comminiére)	15,100
Willært Frères		5,000
Congo Trading Co.....		2,000
		293,680

Plantation Rubber From the Far East.

EXPORTS OF CEYLON-GROWN RUBBER.

(From January 1 to July 1, 1911 and 1912. Compiled by the Ceylon Chamber of Commerce.)

	1911.	1912.
To Great Britain	pounds 1,223,384	2,824,486
To United States	845,941	1,630,163
To Belgium	181,519	546,922
To Australia	18,824	76,494
To Germany	8,590	65,280
To Canada	9,971	16,065
To Austria .....	.....	12,563
To Japan	21,684	8,315
To Italy	3,597	5,885
To Holland	100	2,282
To France	117
To India	85	100
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Total 2,313,812 5,188,594

[Same period 1910—1,087,620 pounds; same 1909—497,677.]

TOTAL EXPORTS FROM MALAYA.

(From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.)

To—	Singapore.	Penang.	Port Swet-	Total.
	June 30.	June 23.	tenham.	1912.
Great Britain...pounds	4,424,045	3,782,341	7,650,658	15,857,044
Continent	118,190	27,867	1,046,019	1,192,076
Japan	211,607	.....	.....	211,607
Australia	28,476	.....	.....	28,476
Ceylon .....	.....	123,751	438,819	562,570
United States	1,129,025	.....	.....	1,129,025
Total	5,911,343	3,933,959	9,135,496	18,980,798
Same period, 1911....	2,766,372	2,055,652	5,994,795	10,816,819
Same period, 1910....	2,533,732	1,006,176	4,069,587	7,609,495
Same period, 1909....	1,240,137	1,436,128	2,676,265



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